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(12) **United States Patent**
Schneider(10) **Patent No.:** **US 6,286,734 B1**(45) **Date of Patent:** **Sep. 11, 2001**(54) **CLOTHES HANGER WITH A PANTS
HOLDING DEVICE**(76) **Inventor:** **Kurt Schneider**, Goethestrasse 11,
D-73540 Heubach (DE)(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.(21) **Appl. No.:** **09/297,553**(22) **PCT Filed:** **Nov. 6, 1997**(86) **PCT No.:** **PCT/EP97/06161**§ 371 **Date:** **Feb. 18, 2000**§ 102(e) **Date:** **Feb. 18, 2000**(87) **PCT Pub. No.:** **WO98/20781****PCT Pub. Date:** **May 22, 1998**(30) **Foreign Application Priority Data**

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Aug. 19, 1997	(DE)	197 35 907

(51) **Int. Cl.⁷** **A47G 25/48**(52) **U.S. Cl.** **223/93; 223/96; 223/91**(58) **Field of Search** **223/90, 91, 93,**
223/85, 96; D6/326(56) **References Cited****U.S. PATENT DOCUMENTS**

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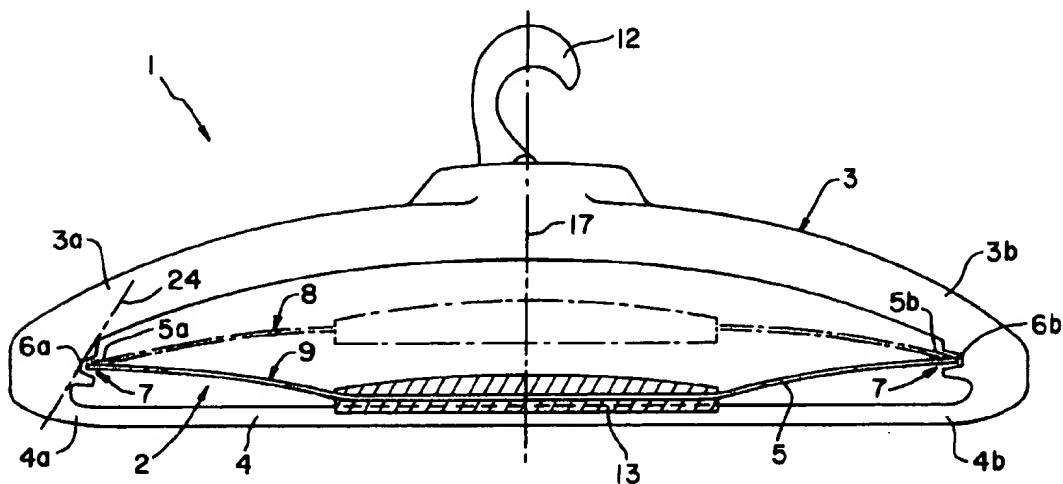
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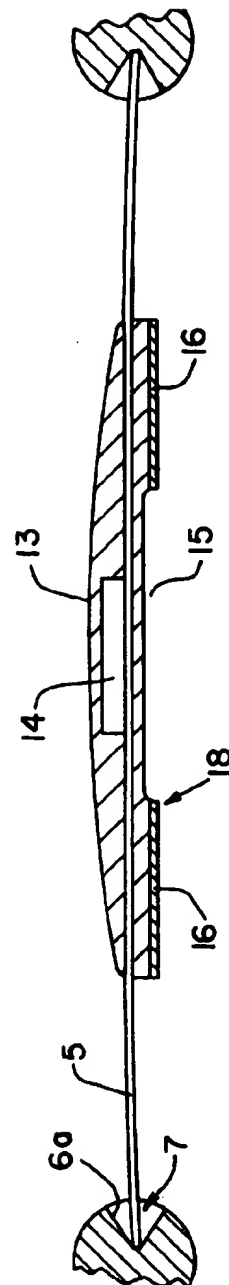
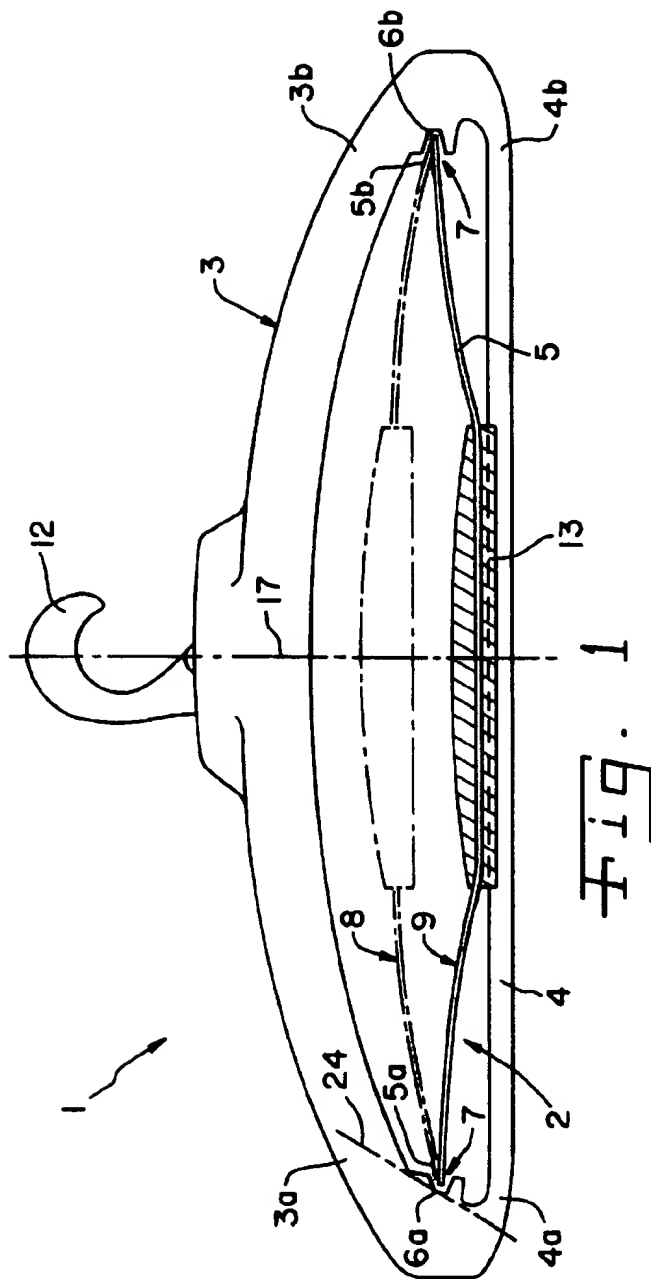
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Primary Examiner—Bibhu Mohanty(74) *Attorney, Agent, or Firm*—Randall J. Knuth(57) **ABSTRACT**

A clothes hanger with a pants holding device comprising a shoulder contour segment with a hook, a cross bar between the arms of the shoulder contour segment and a flexible spring element which is attached to the pants holding device. The spring element extends somewhat parallel to the cross bar and is held in place by means of interlocking openings. The spring element can be moved between a release position and a clamping position, wherein the pants are firmly clamped between the cross bar and the spring element in the clamping position. In order to design the pants holding device with an economy of means and long-lasting efficiency, to securely retain the spring element in the clamping position and in the release position and to enable troublefree switching of the spring element from one position to the other, the ends of the spring element are held in the interlocking openings by forming a joint having a substantially stationary rotating axis.

26 Claims, 7 Drawing Sheets



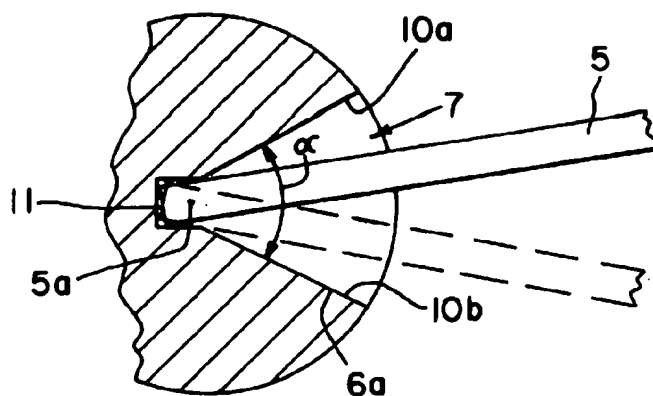


Fig. 3

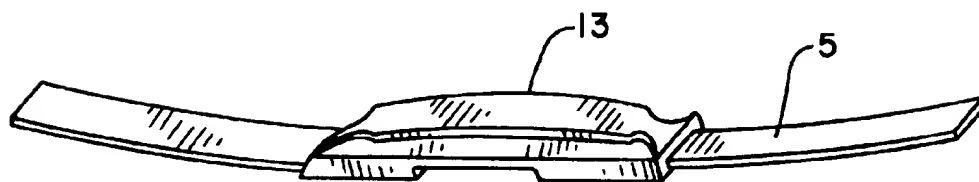


Fig. 3A

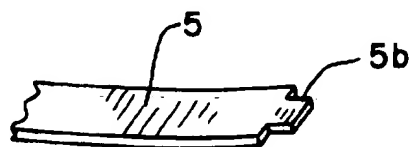


Fig. 3B

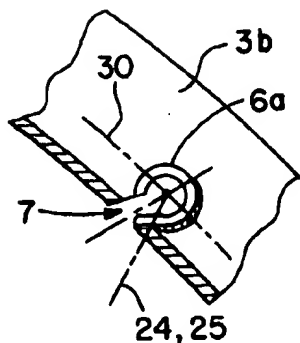


Fig. 4A

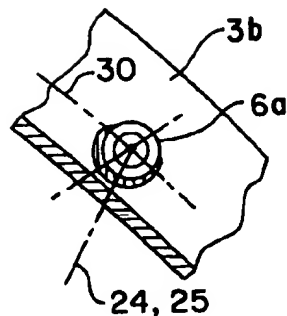


Fig. 4B

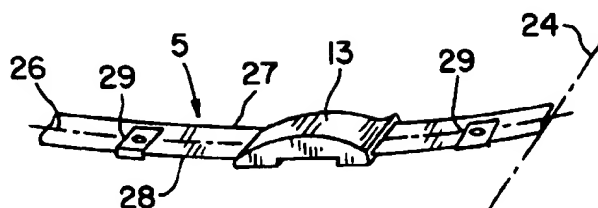


Fig. 4C

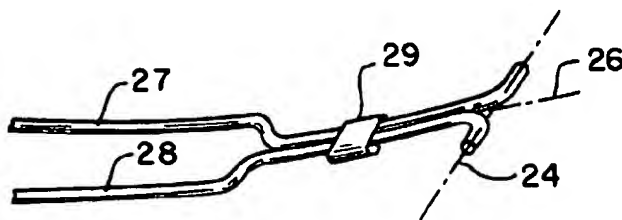


Fig. 4D

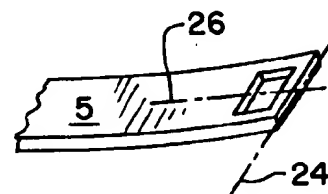


Fig. 4F

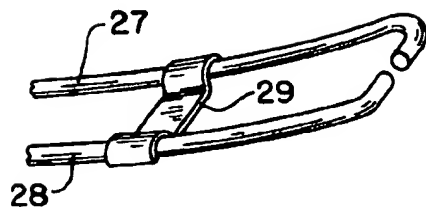


Fig. 4E

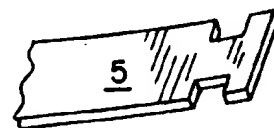


Fig. 4G

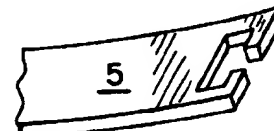
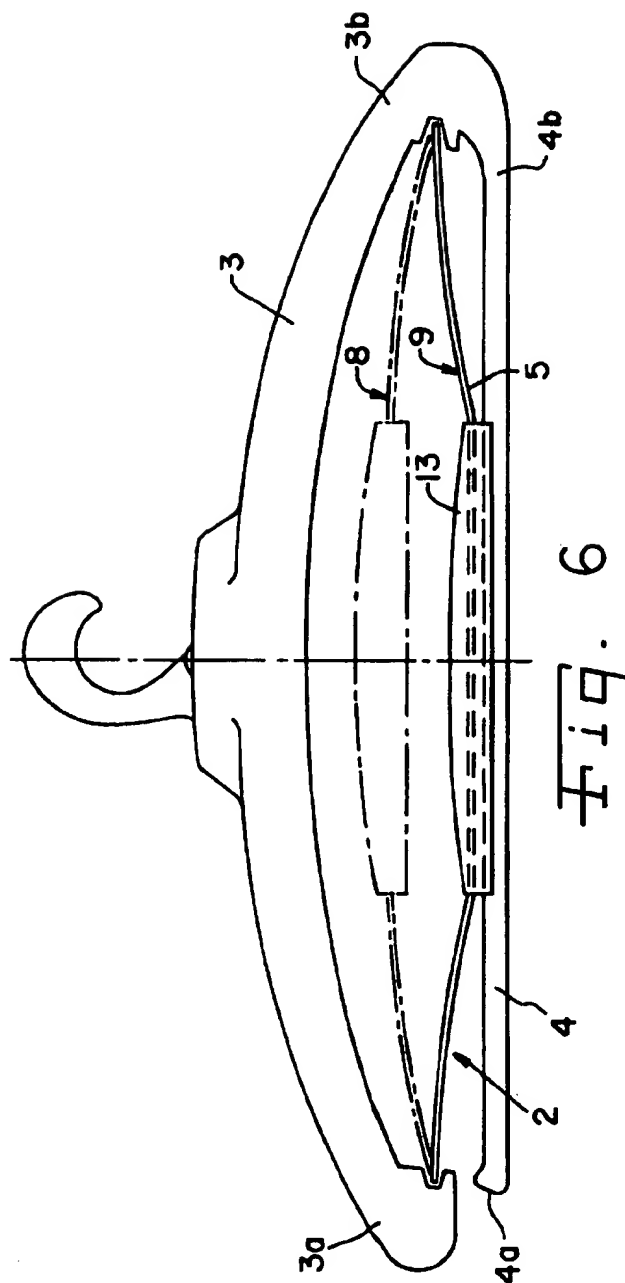
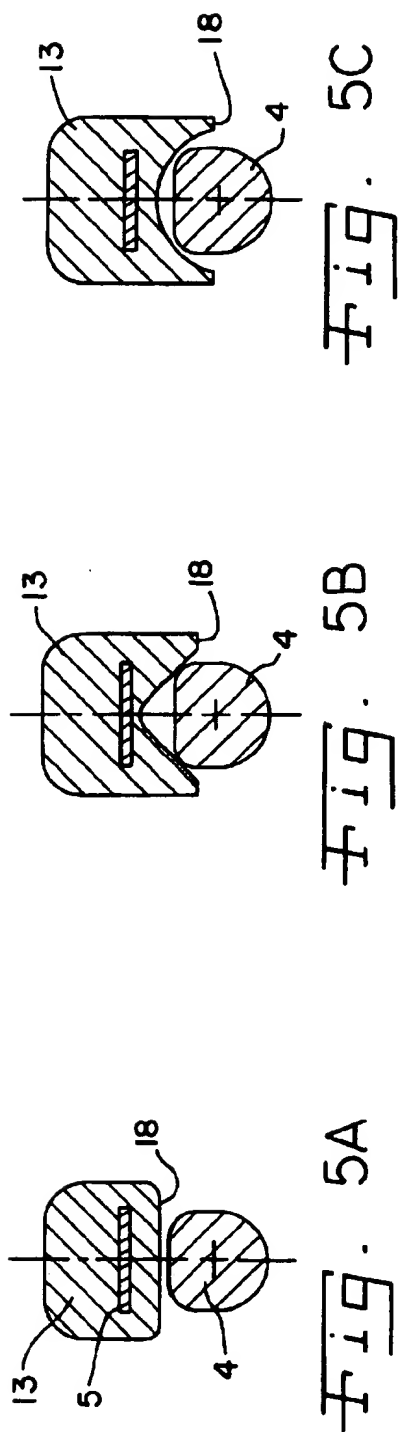
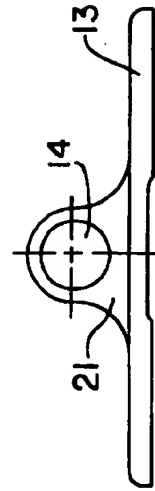
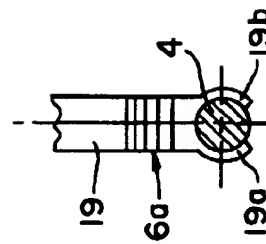
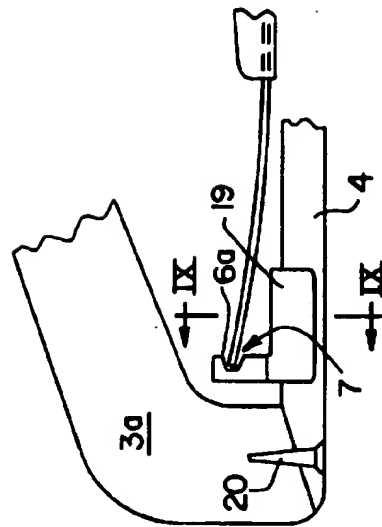
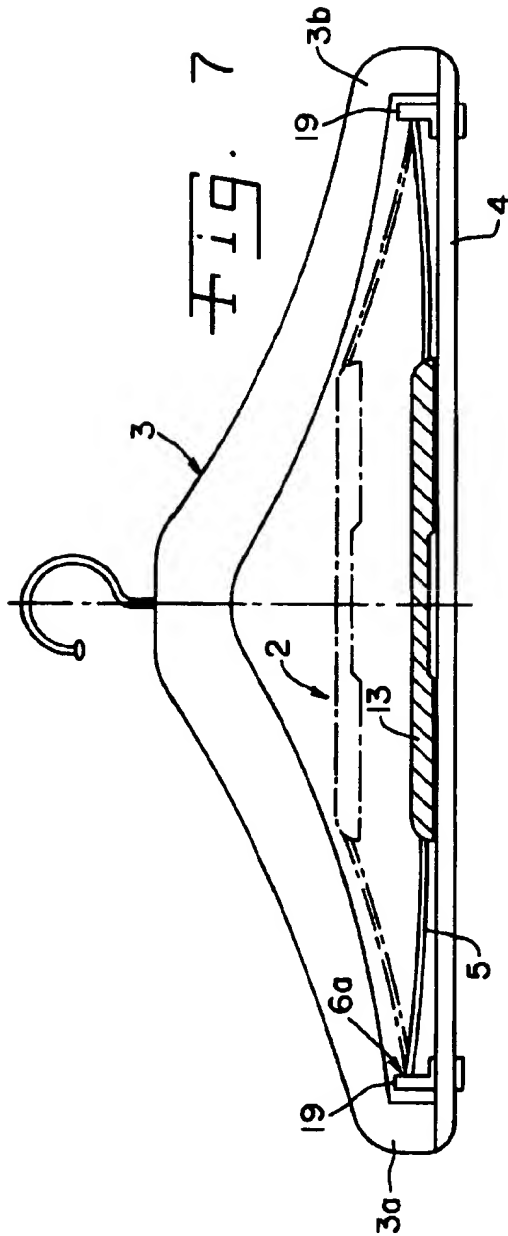
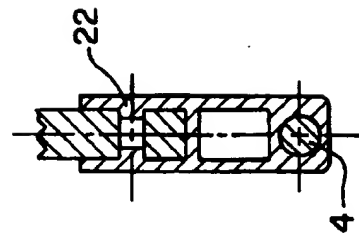
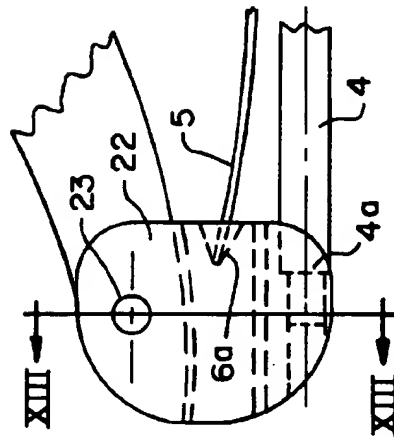
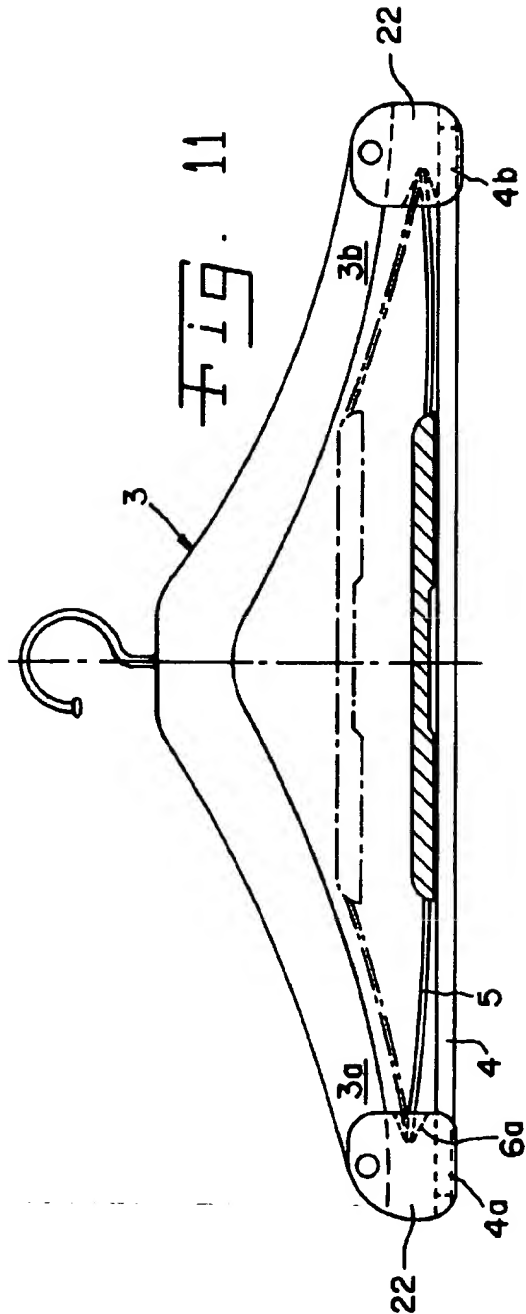
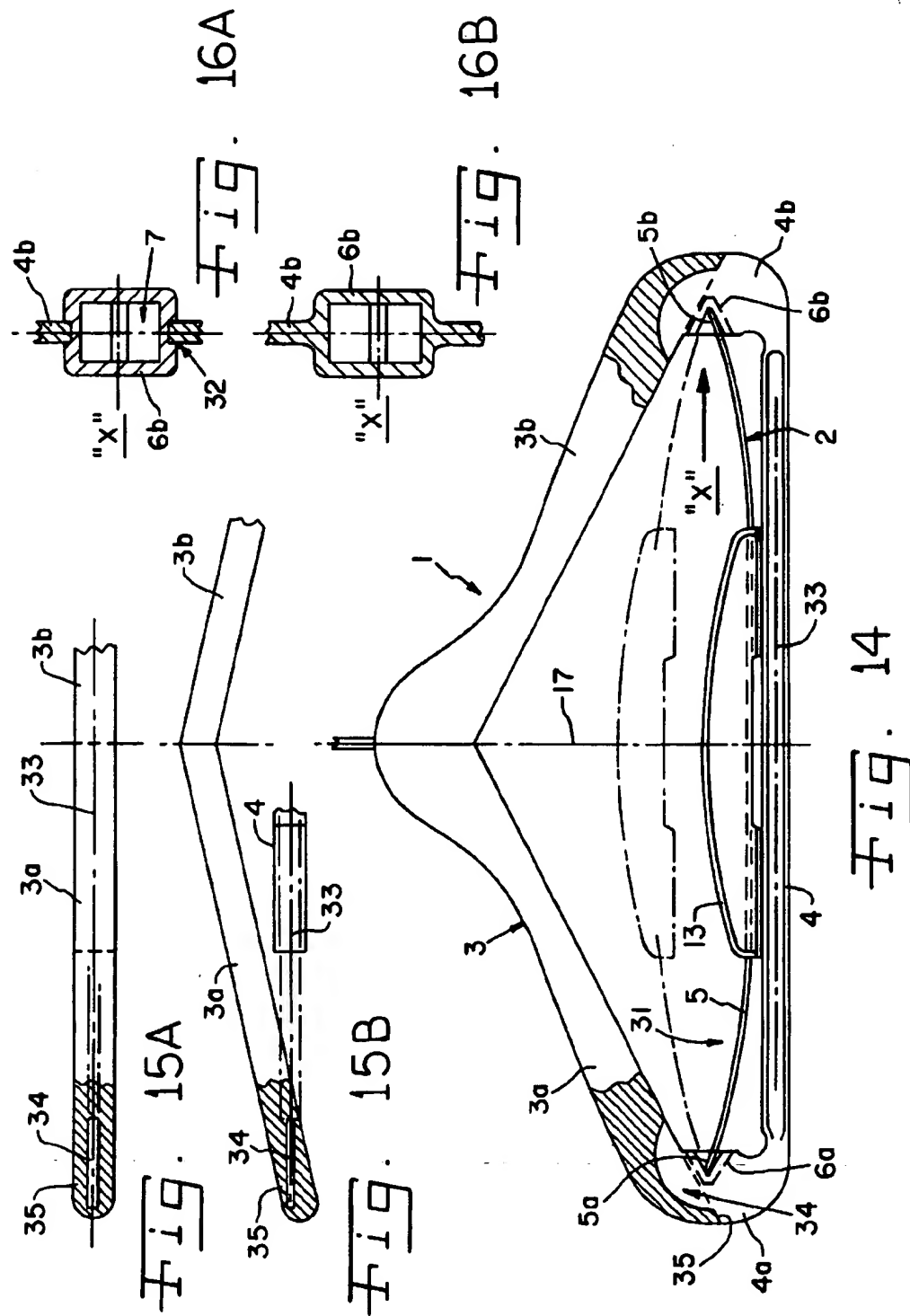


Fig. 4H









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CLOTHES HANGER WITH A PANTS HOLDING DEVICE

The invention is relative to a clothes hanger with a pants holding device.

Such a clothes hanger is known from U.S. Pat. No. 1,206,348. The clothes hanger of this publication comprises a shoulder contour part with a hook. The shoulder contour part serves to receive a jacket or a similar piece of clothing. A crosspiece is clamped between the arms of the shoulder contour part across which crosspiece a pair of pants can be hung. In order to prevent the pants from sliding off unintentionally a spring element is provided which also extends between the arms of the shoulder contour part and runs approximately parallel to the crosspiece. The spring element is flexibly designed and can move back and forth between a clamping position holding the pants and a release position. The ends of the spring element are received in bearing openings with a polygonal cross section on the arms of the shoulder contour part.

This clothes hanger has the disadvantage that a given release position and clamping position of the spring element can not be reliably maintained over time. Conditioned by the cross-sectional form of the bearing opening, an end section of the spring element is supported by a side surface in the release position on an upper outer edge of the bearing opening but in the clamping position on the opposite lower outer edge of the bearing opening. When being moved from one position to the other position and during the snap movement associated therewith the flexible spring element first rotates about the support point on the particular outer edge of bearing opening until the spring element has been bent so far that it automatically jumps into the new position. During the change of position the spring element strikes the opposite outer edge of the bearing opening. This strain results in increased wear to the point where it loses its ability to function.

On account of the bending the spring element has a high internal tension which can result in an uncontrolled, sudden snapping back during the adjustment of the spring element from the release position to the clamping position. This too can result in the inability of the pants holding device to function and also involves the danger of injury.

The invention is based on the problem of developing the pants holding device with simple means so that it functions reliably and permanently, of reliably holding the spring element in the clamping position and in the release position and of making it possible to move the spring element from one position to the other position without problems; in addition, the possibility should be created of providing clothes hangers with simple means with a pants holding device.

This problem is solved in accordance with the invention with the features of claim 1, 16 and 23.

A defined, controlled movement of the spring element during the passage from one position to the other is given by the essentially stationary axis of rotation. The bearing and the particular end of the spring element form an articulation without further components being necessary.

The axis of rotation is purposefully located directly on the bearing bottom and as a result the support point and the point of rotation coincide.

According to an advantageous embodiment the ends of the spring element rest in both positions on the bearing side surfaces of a V-shaped bearing engagement opening. The V-shaped design of the bearing makes it possible to adjust with simple means the aperture angle as a function of the

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structural conditions. Depending on the length of the spring element, the nature of the material and the distance of the spring element from the crosspiece, an aperture angle can be selected by the selection of the bearing which angle permits a deflection of varying intensity of the spring element from the ideal line with a distribution of tension adapted appropriately to the material, the geometry and the function. An uncontrolled changing between the two positions is avoided because the bearing side surfaces support the ends of the spring element and contribute in this manner to stabilization.

An aperture angle of approximately 20° to 80° has proven to be advantageous; the ends of the spring element rest in a stable manner on the bearing side surfaces within this angular range.

A groove can be provided on the bearing bottom into which groove the ends of the spring element are received. The ends of the spring element can be clamped into the groove, especially if the cross section of the groove is adapted to the cross section of the spring element; the possibility of the spring element moving between the two defined positions is not limited thereby. The spring element is prevented from coming loose out of the bearing in an unintentional manner.

Another advantageous development provides that the engagement opening has a rounded, especially a circular or partially circular cross section with a cross-sectional axis orthogonal to the longitudinal axis of the spring element. A curved end of the spring element can be suspended in this opening, which curved end forms the bearing axis.

The spring element advantageously consists of a spring band steel such as, e.g., high-grade steel and is continuous, thus, without interruption and advantageously without a kink and preferably has a constant cross section over its entire length. This standard structural component is economical and functions reliably.

The problem on which the invention is based can also be solved in that a centrally arranged, reinforced holding middle piece [middle holding piece] is provided on the spring element which middle piece has a greater bending resistance than the spring element. The holding middle piece contributes to stabilization in both positions and, in addition, assumes ergonomic functions. The holding middle piece effects a stiffening of the spring element in the middle range which prevents a corrugated forming of the spring element, especially during the passage from the release position into the end position and inversely, and also prevents other stable but undesired positions. In the clamping position the spring element rests areally on the crosspiece in the area of the holding middle piece and exerts a uniform pressure over the length of the holding middle piece on the pants to be clamped fast. A punctual loading, which can lead to a sliding of the pants, is avoided.

The holding middle piece can be provided with a finger catch [catch area, engagement area] for reliable and comfortable manipulation in order to simplify the moving from one position to the other. Furthermore, a middle recess can be present on the side facing the crosspiece in order to leave room for thick seams of the pants hanging over the crosspiece.

In order to equip clothes hangers with simple means with a pants holding device it is provided that the cross piece and the spring element can be designed as an independent pants holding module. The pants holding module can be manufactured independently of the clothes hanger and subsequently mounted on the clothes hanger. The clothes hanger can be subsequently provided with the pants holding module or also be equipped with a connecting unit for the pants holding module during the manufacture already.

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The crosspiece is advantageously manufactured either from plastic or from metal. In the case of a crosspiece manufactured from plastic the bearings provided for holding the spring band purposefully consist of plastic and are injected into the crosspiece. In the case of a crosspiece manufactured from metal the bearings are designed as independent plastic bearings which can be inserted into punched-out openings in the crosspiece.

The connection between the clothes hanger and the pants holding module preferably takes place by means of the engagement of the ends of the crosspiece into slots fashioned on the bottom of the arms of the shoulder contour part. The ends of the crosspiece are preferably designed in the form of shanks to this end and stand vertically in relation to the longitudinal axis of the crosspiece, that is, they face upward and can be easily inserted into the slots.

FIG. 1 shows a side view of the clothes hanger in accordance with the invention.

FIG. 2 shows a side view of the spring element.

FIG. 3 shows an enlarged view of a bearing.

FIGS. 3a, 3b show embodiments of the spring element as a spring band.

FIGS. 4a, 4b show variants of embodiments of engagement openings in the shoulder contour part.

FIGS. 4c, 4d, 4e show embodiments of the spring element as a wire spring.

FIGS. 4f, 4g, 4h show further embodiments of the spring element as a spring band.

FIGS. 5a, 5b, 5c each show a section through the spring element and the crosspiece.

FIG. 6 shows another embodiment of the clothes hanger.

FIG. 7 shows yet another embodiment of the clothes hanger.

FIG. 8 shows an enlargement of a cutaway portion of FIG. 7.

FIG. 9 shows a view along section [cut] line IX—IX in FIG. 8.

FIG. 10 shows a holding middle piece in another embodiment.

FIG. 11 shows yet another embodiment of the clothes hanger.

FIG. 12 shows an enlargement of a cutaway portion of FIG. 11.

FIG. 13 shows a view along section line XIII—XIII in FIG. 12.

FIG. 14 shows another embodiment of the clothes hanger.

FIG. 15a shows a top view of the clothes hanger of FIG. 14 in a first variant.

FIG. 15b shows a top view of the clothes hanger of FIG. 14 in a second variant.

FIG. 16a shows detail "X" of FIG. 14 in a first variant.

FIG. 16b shows detail "X" of FIG. 14 in a second variant.

According to FIG. 1 the clothes hanger 1 consists of shoulder contour part 3 with slightly bent arms 3a, 3b falling off laterally, of hook 12, crosspiece 4 between the end sections of arms 3a, 3b as well as of pants holding device 2. Pants holding device 2 comprises spring element 5 which is arranged between shoulder contour part 3 and crosspiece 4 and whose ends 5a, 5b are received in bearings 6. Bearings 6 are arranged in the area of the end sections of arms 3a, 3b of shoulder contour part 3 on the inside, so that spring element 5 attacks the shoulder contour part directly. Each bearing 6 has an engagement opening 7 into which an end 5a or 5b of spring element 5 is inserted. Furthermore, holding middle piece 13 is provided on spring element 5. Pants holding device 2 is designed symmetrically to central

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bisectrix. Crosspiece 4 is designed integrally with shoulder contour part 3 and connected at both ends 4a, 4b to arms 3a, 3b of the shoulder contour part.

Spring element 5 extending approximately parallel to cross piece 4 can move back and forth between release position 8 and clamping position 9. In release position 8 the pants can be placed over crosspiece 4 or removed from it. In clamping position 9 the pants are clamped fast between spring element 5 and crosspiece 4.

Spring element 5 can bend elastically orthogonally to its longitudinal plane. The length of spring element 5 exceeds the interval between the two opposite engagement openings; the spring element therefore stands under internal tension and assumes a stable position only either in release position 8 or in clamping position 9. The release position and the clamping position are located somewhat above and below an imaginary ideal line running between the bearings which ideal line extends parallel to the crosspiece and within the inner surface limited by shoulder contour part 3 and crosspiece 4.

Ends 5a, 5b of spring element 5 rest on the bottom of engagement opening 7 and are supported there. Engagement opening 7 and the particular spring-element end 5a, 5b form an articulation with essentially stationary axis of rotation 24 located directly on the bearing bottom (FIG. 1).

The stability in the two positions of the spring element is supported by the form of bearing 6, whose engagement openings 7 are designed somewhat V-shaped according to FIGS. 2, 3 and open toward spring element 5. Aperture angle α of engagement openings 7 can be between approximately 20° and 80°. In the exemplary embodiment the aperture angle is approximately 50° to 60°.

Bearing side surfaces 10a, 10b are formed by the V shape of engagement opening 7 which side surfaces function as stop faces for the end sections of spring element 5. In the release position the end section of the spring element rests on upper bearing side surface 10a and in the clamping position on lower bearing side surface 10b. Bearing side surfaces 10a, 10b support spring element 5 and contribute to stabilization. This avoids an uncontrolled snapping back and forth of the spring element.

Even holding middle piece 13, which is centrally fastened on the spring element, contributes to the stabilization. The holding middle piece has a significantly greater bending resistance than the soft spring element and as a result stiffens the middle area of the spring element. On the other hand, the edge areas of the spring element remain uninfluenced on account of the shorter length of the holding middle piece in comparison to the spring element.

It can also be gathered from FIG. 2 that holding middle piece 13 has a central recess 15 on the bottom facing the crosspiece. The middle recess creates room for the seam of a pair of pants clamped fast, so that an areal clamping fast becomes possible and a punctual clamping fast is avoided. Holding middle piece 13 is provided on both sides of central recess on bottom 18 with anti-slide element or anti-slide coating 16 with which an unintentional sliding off of the pants is prevented. The anti-slide element clamps the pants fast on account of high friction and has, e.g., a rubber coating on the side facing the crosspiece. Since the holding middle piece does not bend, the two anti-slide elements lie on top in a line and areally in the clamping position and clamp the pants reliably in.

Furthermore, holding middle piece 13 is provided above spring element 5 with a finger catch 14 which catch makes possible a user-friendly shifting between the release position and the clamping position. Finger catch 14 has a rectangular

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cross section but can also run in a curve. Holding middle piece 13 is slightly crowned on its top.

Holding middle piece 13 is manufactured in a purposeful manner as an independent component of plastic and surrounds spring element 5, which can be inserted into a corresponding conduit or a groove in the holding middle piece open to crosspiece 4. It can also be purposeful to fasten the holding middle piece in that the two anti-slide elements 16 are designed as independent components but permanently connected to the holding middle piece, e.g., by adhesion or pins and that the spring element is clamped fast between the holding middle piece and the anti-slide elements. In both instances the holding middle piece is held fast on the spring element.

The bottom or base of bearing 6 is advantageously provided according to FIG. 3 with groove 11 whose cross section is the same as the cross section of the spring element. End 5a of spring element 5 is clamped into groove 11, which prevents spring element 5 from jumping out unintentionally out of bearing 6. The groove cross section and the cross section of the spring element are rectangular.

Spring element 5 consists with advantage of high-grade steel and can be designed as a spring band which extends continuously with constant cross section between the bearings. This spring band is distinguished by a high degree of elasticity and can be used for a long time without material fatigue. Holding middle piece 13, which is advantageously designed as a separate component and consists largely of non-elastic plastic, prevents a bending of the spring band in the area of the holding middle piece and, as a result, makes it possible to press the pants areally on the crosspiece. At the same time holding middle piece 13 contributes to the stabilizing of the spring band in the release position and in the clamping position.

According to another embodiment the spring element and the holding middle piece are designed as a common component. Even in this embodiment the spring element can be designed as a spring band which, however, has a shape deviating from the end sections in the middle section by reshaping, welding it on, soldering it on or the like and is provided with the functions of the holding middle piece. Instead of consisting of metal the one-piece design can also be formed as an injection-molding part of plastic.

FIGS. 3a and 3b show different embodiments of spring element 5 designed as a spring band which can be used in particular in conjunction with the V-shaped bearing according to FIGS. 2 and 3. According to FIG. 3a the spring band of the spring element is designed rectangularly, viewed from the top. According to FIG. 3b, end 5b of the spring element comprises punched-out corners so that a projection with a small width is given which can engage into a corresponding groove 11 at the bottom of bearing 6.

FIGS. 4a and 4b show variants of embodiments of engagement openings 7 on arm 3a of the shoulder contour part. Engagement openings 7 are circular or partially circular and have cross-sectional axis 25 running advantageously orthogonally to longitudinal axis 30 of arm 3b of the shoulder contour part. Moreover, cross-sectional axis 25 is also arranged orthogonally to longitudinal axis 26 of spring element 5 (FIG. 4c). Engagement opening 7 is either interrupted in the direction of the inner side of the shoulder contour part according to FIG. 4a and thus forms an open round bearing, or is integrated according to FIG. 4b completely in the arm of the shoulder contour part (closed round bearing).

In both instances a design of spring element 5 according to FIGS. 4c to 4h is especially suited for engagement, during

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which the end of the spring element is clipped into the round bearing. FIGS. 4c to 4e show embodiments of the spring element as a wire spring and FIGS. 4f to 4h show embodiments as a spring band.

In the embodiments as a wire spring, spring element 5 comprises two parallel individual wires 27, 28 connected by connecting member 29, e.g., a plastic member. The end areas can either have a closed curved form, FIG. 4c, or be designed as open curved pieces [clamps, loops, clips], FIGS. 4d and 4e. In both instances axis of rotation 24 runs approximately vertically to longitudinal axis 26 of spring element 5. The open ends of the curved pieces are either T-shaped and face away from one another (FIG. 4d) or face one another (FIG. 4e).

The design as wire spring has the advantage that in the case of a second crosspiece which can be arranged above the first crosspiece 4 receiving the pants and can be provided, e.g., for ties, the bending line of the spring element in the release position can run higher than the second crosspiece; this is made possible in that in the release position the second crosspiece can be received in the intermediate space between the two individual wires 27 and 28 of spring element 5.

The embodiments as spring band according to FIGS. 4f to 4h are also suitable for an engagement into a round bearing according to FIGS. 4a and 4b. Recesses are provided in the end sections of the spring band via which recesses an engagement and a cooperation with bearing 6 is made possible.

FIGS. 5a to 5c show different cross-sectional forms of holding middle piece 13. According to FIG. 5a holding middle piece 13 has an approximately rectangular cross section with a plane bottom 18 facing crosspiece 4 and has rounded edges. According to FIG. 5b holding middle piece 13 is provided on bottom 18 with a V-shaped groove partially surrounding crosspiece 4 in the clamping position. A groove is also provided according to figure 5c on bottom 18 but with a semicircular cross section.

In all instances crosspiece 4 is plane on the side facing holding middle piece 13 and partially circular on the side facing away from the holding middle piece.

FIG. 6 shown another exemplary embodiment. Crosspiece 4 is open on one end 4a and connected to arm 3b of shoulder contour part 3b only on the opposite end 4b. This design has the advantage that the pants can be inserted laterally into and removed laterally from pants holding device 2.

FIGS. 7 to 9 show yet another exemplary embodiment which is especially suitable for retrofitting a pants holding device into a traditional clothes hanger. Pants holding device 2 is provided, as previously described, with spring element 5 and holding middle piece 13; however, bearings 6 are arranged on auxiliary elements 19 held directly on crosspiece 4. Thus, spring element 5 is held only indirectly on shoulder contour part 3. It can be gathered from the sectional enlargement of FIG. 8 that bearing 6 has V-shaped engagement opening 7 in the manner previously described, which opening is arranged on a section of auxiliary element 19 which section extends vertically. The bottom of the bearing is plane [level], so that a trapezoidal cross section of the engagement opening results.

As can be gathered from FIG. 9, auxiliary element 19 is provided with two partially circular walls 19a, 19b limiting a receiving groove and is thrust onto crosspiece 4. The auxiliary element can also be screwed on or connected in some other suitable manner to the crosspiece.

Crosspiece 4 is designed as an independent component which can be detached from shoulder contour part 3 and connected to arm 3a and/or 3b or shoulder contour part 3 by screw 20.

FIG. 10 shows holding middle piece 13, whose circular finger catch 14 sits on flange 21 on top of the holding middle piece.

FIGS. 11 to 13 show another exemplary embodiment. Crosspiece 4 is connected at both ends 4a, 4b by connecting element 22 to arms 3a, 3b of shoulder contour part 3. Connecting element 22 is also the carrier of bearing 6 for holding spring element 5. The connecting element is provided with a recess for receiving crosspiece 4; the connection to the arms of shoulder contour part 3 takes place via a hinge or screw connection 23.

FIGS. 14a to 16b show yet another exemplary embodiment. According to the lateral view of FIG. 14 clothes hanger 1, manufactured from wood or plastic, consists of shoulder contour part 3 with the two lateral arms 3a and 3b. Pants holding device 2, consisting of spring element 5 with holding middle piece 13, and crosspiece 4 form independent pants holding module 31 which is separate from shoulder contour part 3 and can be fastened to the shoulder contour part by suitable measures. To this end, ends 4a, 4b of crosspiece 4 each form a shank which extends vertically upward opposite longitudinal axis 33 of crosspiece 4 and engages into slot 34 on bottom 35 of arms 3a, 3b of shoulder contour part 3 (see also FIGS. 15a, 15b). Slot 34 and free, shank-like ends 4a, 4b of crosspiece 4 are curved. Ends 4a, 4b are held in slots 34 in an undetachable manner, especially by positive locking or material locking [incorporation into the material] such as clips, rivets, screws or adhesion. If applicable, a frictional grip can also be sufficient.

In the variant shown in FIG. 15a the shoulder contour part is provided with two arms 3a, 3b located in a plane. Longitudinal axis 33 of the crosspiece is in this instance at the same time the plane of the shoulder contour part and the slot plane of slot 34.

In the variant shown in FIG. 15b the two arms 3a, 3b of the shoulder contour part form an angle. Slot 34 is rotated by the same angle relative to the plane of an arm 3a or 3b; however, the dimensions of slot 34 are to be dimensioned in such a manner that the slot does not open to the outside on the lateral wall of the shoulder contour part.

Crosspiece 4 can be manufactured either from plastic or from metal. In the variant shown in FIG. 16a the crosspiece consists of metal and comprises plastic bearings 6 with engagement openings 7 for the ends of spring element 5. Openings 32 are placed in crosspiece 4 into which openings plastic bearings 6 are received. Round plastic bearings 6 can have an annular groove on their jacket surface to this end with which groove bearings 6 are clipped into openings 32.

In the variant shown in FIG. 16b the crosspiece is manufactured from plastic and bearing 6 is injected into the crosspiece.

Pants holding module 31, which forms a unit consisting of spring element 5 and crosspiece 4, assures an axially parallel alignment of crosspiece and spring element.

List of Reference Numerals

- 1 clothes hanger
- 2 pants holding device
- 3 shoulder contour part with arms 3a, 3b
- 4 crosspiece with ends 4a, 4b
- 5 spring element with ends 5a, 5b
- 6 bearing
- 7 engagement opening
- 8 release position
- 9 clamping position
- 10a,b bearing side surfaces
- 11 groove

- 12 hook
- 13 holding middle piece
- 14 finger catch
- 15 central recess
- 16 anti-slide element
- 17 central bisectrix
- 18 bottom of the holding middle piece
- 19 auxiliary elements with walls 19a, 19b
- 20 screw
- 21 flange
- 22 connecting element
- 23 hinge, screw connection
- 24 axis of rotation
- 25 cross-sectional axis of the engagement opening
- 26 longitudinal axis of the spring element
- 27 wire
- 28 wire
- 29 connecting member
- 30 longitudinal axis of the shoulder contour part
- 31 pants holding module
- 32 opening
- 33 longitudinal axis
- 34 slot
- 35 bottom

What is claimed is:

1. A clothes hanger with a pants holding device for clamping pants, said clothes hanger comprising:

- a hook;
- a shoulder contour component having a first and second arm; each said arm contains an engagement opening which forms a first and second bearing, respectively, said hook affixed to said shoulder contour component;
- a crosspiece between said arms;
- a spring element having a first and second spring end and extending approximately parallel to said crosspiece, each said engagement opening open toward said spring element, said first and second spring end held in said first and second bearing free of restraint respectively, and forming an articulation having an essentially stationary axis of rotation, said spring element can move between a release position and a clamping position whereby, in said clamping position, the pants can be clamped between said crosspiece and said spring element; and
- a holding track piece associated with said spring element, said track has a lesser length than said spring element and which track has a greater bending resistance than said spring element, said track associated with the spring element in such a manner that a bending of said spring element is prevented in the area of the track, and length of the spring element is dimensioned so that it is under inherent tension and that the release position and the clamping position of said spring element are located above and below an ideal line imagined as running between the bearings and extending parallel to the crosspiece.

2. The clothes hanger according to claim 1, whereby said first and second bearings have a bearing bottom and said axis of rotation is located directly on the bearing bottom.

3. The clothes hanger according to claim 1, further comprising:

- said engagement openings being approximately V-shaped which open toward said spring element; said engagement openings defining an aperture angle;
- said first and second bearings having bearing side surfaces, which limit said aperture angle and form stop

faces for said spring element when in said release position and in said clamping position.

4. The clothes hanger according to claim 3, wherein said aperture angle approximately 20° to 80°.

5. The clothes hanger according to claim 3, wherein said first and second bearings have a bearing bottom and each said bearing having a groove for receiving said first and second spring ends, respectively.

6. The clothes hanger according to claim 5, in which said groove has a cross section which is approximately the same as a cross section of said spring ends.

7. The clothes hanger according to claim 1, further comprising:

said spring element having a longitudinal axis; and said engagement opening having a rounded cross section and an engagement cross-sectional axis, said engagement cross-sectional axis running approximately orthogonally to said longitudinal axis.

8. The clothes hanger according to claim 7, in which said engagement opening is interrupted in a direction of the inside of said shoulder contour component.

9. The clothes hanger according to claim 7, in which said bearings have bearing walls which completely surrounded said engagement opening.

10. The clothes hanger according to claim 7, in which said spring ends are designed as curved pieces passing through said engagement opening.

11. The clothes hanger according to claim 1, in which said spring element is continuous.

12. The clothes hanger according to claim 1, in which said spring element consists of a spring band.

13. The clothes hanger according to claim 12, whereby said spring element has a constant, cross section over its entire length.

14. The clothes hanger according to one of claim 1, wherein said spring element is designed as a wire spring, said wire spring having two parallel wires connected to one another.

15. The clothes hanger according to claim 1, wherein the pants holding device is symmetrical about a midline of the clothes hanger.

16. A clothes hanger with a pants holding device for clamping pants, said clothes hanger comprising:

a spring element having ends, said spring element having a clamping position and a release position;

a crosspiece including bearings in the area of its ends which bearings have engagement openings for support-

ing the ends of the spring element, said engagement openings open toward the spring element so that the ends of said spring element are free of restraints; and

a track associated with the spring element, said track having a lesser length than the spring element, said track having a greater bending resistance than said spring element, said track associated with said spring element in such a manner that a bending of said spring element is prevented in the area of said track, while the length of said spring element is dimensioned in such a manner that it is under inherent tension and that the release position and the clamping position of the spring element are located above and below an ideal line imagined as running between the bearings and extending parallel to the crosspiece.

17. The clothes hanger according to claim 16 wherein said track is contains a finger catch.

18. The clothes hanger according to claim 16, wherein said track further comprises a central recess having an opening toward said crosspiece.

19. The clothes hanger according to claim 16 further comprising:

an anti-slide element; and

said track has a side facing said crosspiece, said anti-slide element located on said side.

20. The clothes hanger according to claim 16, in which said track is a formed as an independent component from said spring element and said track connected to said spring element.

21. The clothes hanger according to claim 16, in which said track and said spring element are formed as a single piece.

22. The clothes hanger according to claim 1, wherein said aperture angle approximately 50° to 60°.

23. The clothes hanger according to claim 8, in which said spring are designed as curved pieces passing through said engagement opening.

24. The clothes hanger according to claim 9, in which said spring are designed as curved pieces passing through said engagement opening.

25. The clothes hanger according claim 12 whereby said spring element consists of a spring band.

26. The clothes hanger according claim 20 whereby said middle holding piece is composed of plastic.

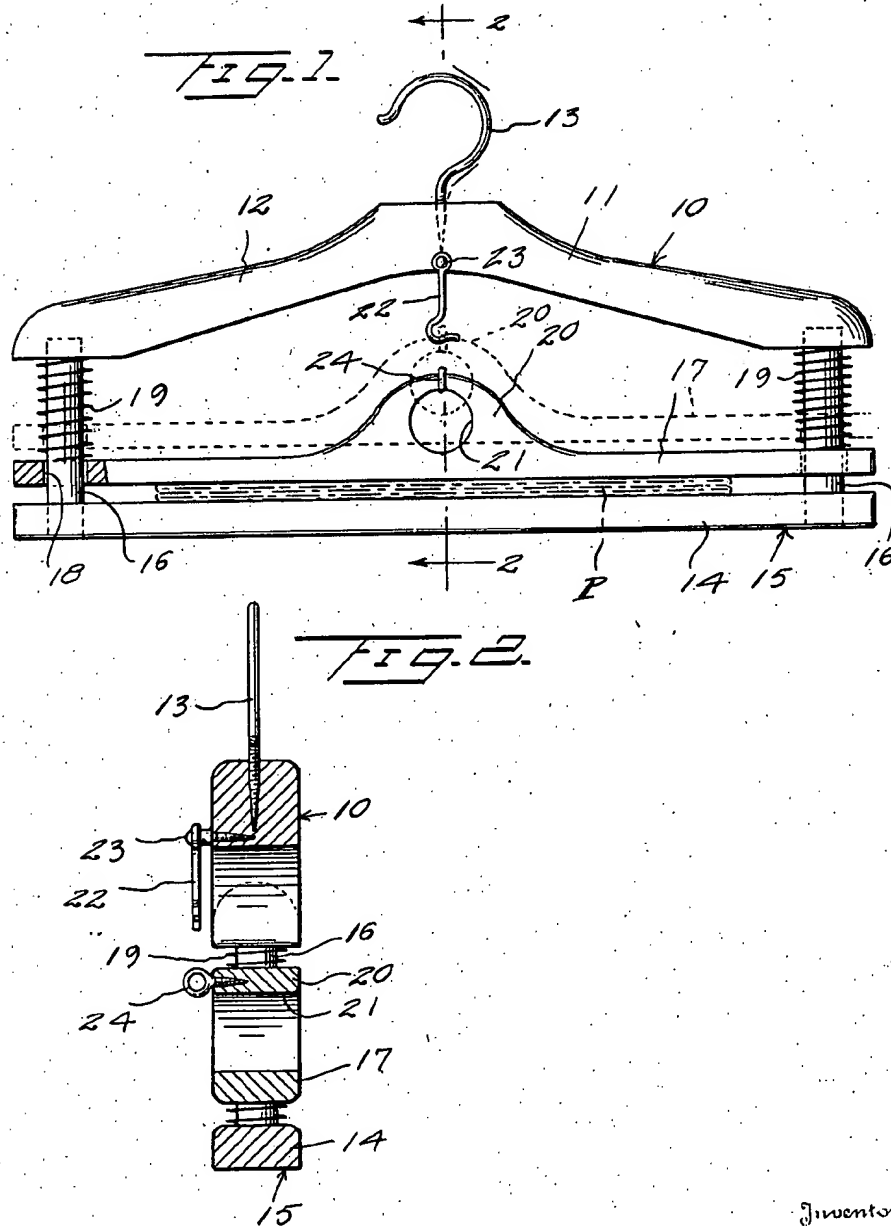
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May 29, 1945.

H. R. ELLIS
GARMENT HANGER

2,377,218

Filed Feb. 18, 1944



Inventor
H.R. Ellis

By *Kimmel & Crowell*
Attorneys

UNITED STATES PATENT OFFICE

2,377,218

GARMENT HANGER

Horace R. Ellis, Meadville, Pa.

Application February 18, 1944, Serial No. 522,926

2 Claims. (Cl. 223-91)

This invention relates to garment hangers.

An object of this invention is to provide a combined coat and pants hanger which is so constructed that the pants supported on the hanger will not slip off therefrom.

Another object of this invention is to provide a garment hanger of this type in which the pants hanger includes a stationary bar and a spring-pressed pressure bar which is adapted to tightly hold the pants so that they will not slip from the hanger.

A further object of this invention is to provide a garment hanger of this type in which the pants hanger may be latched or locked in open position so as to facilitate the placement of the pants thereon.

With the foregoing objects and others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawing wherein is shown an embodiment of this invention, but it is to be understood that changes, modifications and variations may be resorted to which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a detail side elevation partly broken away and in section of a garment hanger constructed according to an embodiment of this invention, and

Figure 2 is a sectional view taken on the line 2-2 of Figure 1.

Referring to the drawing, the numeral 10 designates generally a coat hanger which is formed of a single elongated bar having a pair of downwardly and outwardly divergent arms 11 and 12. A supporting hook 13 is secured to the upper or convergent ends of the arms 11 and 12 and is adapted to be engaged with a suitable support.

A lower horizontally disposed straight bar 14 is positioned below the coat hanger 10 and forms one jaw of a pants supporting or clamping member, generally designated as 15. The lower bar 14 is fixedly secured in downwardly spaced relation to the outer divergent ends of the arms 11 and 12 by means of a pair of dowels 16 secured at their lower ends to the lower bar 14 and secured at their upper ends to the outer divergent ends of the arms 11 and 12.

A movable clamping bar 17 which is formed with openings 18 adjacent the opposite ends thereof is slidable on the dowels 16 and is adapted to clamp the pants P onto the fixed or lower bar 14. The movable clamping bar 17 is urged downwardly to clamping position by means of springs

19 which engage about the dowels 16 and are interposed between the upper side of the bar 17 and the outer lower ends of the arms 11 and 12. The bar 17 at the central portion thereof is formed with an enlargement or boss 20 having a finger opening 21 therein so that the bar 17 may be readily raised to the dotted line position which is the inoperative position of the bar, and in which latter position the space between the bar 17 and the bar 14 will be enlarged to permit insertion of the pants therebetween.

The movable clamping bar 17 is adapted to be held in an upper inoperative position by means of a hook 22 which is pivotally mounted on a screw or bolt 23 carried by the coat hanger 10 in the central portion thereof. The hook 22 is adapted to engage an eye 24 carried by the enlargement 20 above the finger opening 21 and in the released position of the bar 17, the hook 22 will engage the eye 24, as shown in dotted lines in Figure 1, so that one or both hands may be used for inserting the pants between the two bars 14 and 17. After the pants have been looped over the lower bar 14, the hook 22 may be released from the eye 24, thereby permitting the springs 19 to move the bar 17 downwardly into clamping position so as to thereby tightly clamp the pants P on the bar 14.

With a construction of this kind, the coat or other garment may be removed from the arms 11 and 12 without disturbing the pants P or other garment which may be mounted on the bar 14. In garment hangers which embody the use of a single pants supporting bar, the pants will frequently slide to one end or the other of this bar and form wrinkles, whereas with a combined coat and pants hanger as hereinabove described, the pants are held against endwise movement on the lower supporting bar 14 and cannot slip off from this bar, due to the clamping of the bar 17 under the action of the springs 19.

This hanger may be made almost entirely out of wood with the exception of the springs 19 and the hook 13 together with the hook and eye 22 and 24, respectively, so that the hanger can be manufactured and sold at a moderately low cost. It will be understood that the hook and eye herein shown are only illustrative of a holding means for the pressure bar 17, and other suitable holding devices may be used.

What I claim is:

1. A garment hanger comprising an elongated member, a supporting hook carried by said member, a horizontal bar disposed below said member, means supporting said bar from said member, a

pressure bar slidably engaging said supporting means, springs about said supporting means constantly urging said pressure bar toward said first bar, means carried by said pressure bar whereby the latter may be raised to released position, and correlated means carried by said member and said pressure bar whereby the latter may be locked in released position.

2. A coat hanger formed of a single elongated bar having a pair of downwardly and outwardly divergent arms, a supporting hook secured to the upper ends of the arms adapted to be engaged with a suitable support, a lower horizontally disposed straight bar positioned below the coat hanger forming one jaw of a pants supporting member, said lower bar being fixed secured in down-

wardly spaced relation to the outer divergent ends of the arms by means of a pair of dowels secured at their lower ends to the lower bar, and secured at their upper ends to the outer convergent ends of said arms, a movable clamping bar formed with openings adjacent the opposite ends thereof, slidable on the dowels and adapted to clamp the pants onto the fixed lower bar, springs adapted to urge said movable clamping bar downwardly to clamping position, said springs adapted to engage about said dowels and being interposed between the upper side of the movable bar, and the outer lower ends of the outwardly divergent arms, an enlargement at the central portion of said movable bar, and a finger opening therein.

HORACE R. ELLIS.



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(12) **United States Patent**
Gish

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(45) **Date of Patent:** **Nov. 19, 2002**

(54) **NON-SLIP CLOTHES HANGERS**

(76) **Inventor:** **Donald A. Gish**, 51470 Pine Canyon Rd., King City, CA (US) 93930

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 153 days.

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(21) **Appl. No.:** **09/828,350**

(22) **Filed:** **Apr. 5, 2001**

(65) **Prior Publication Data**

US 2001/0015364 A1 Aug. 23, 2001

Related U.S. Application Data

(62) Division of application No. 09/507,909, filed on Feb. 22, 2000, now Pat. No. 6,213,359.

(51) **Int. Cl.⁷** **A47G 25/36**
(52) **U.S. Cl.** **223/96; 223/95**
(58) **Field of Search** **223/96, 98, 85, 223/92, 88, 95**

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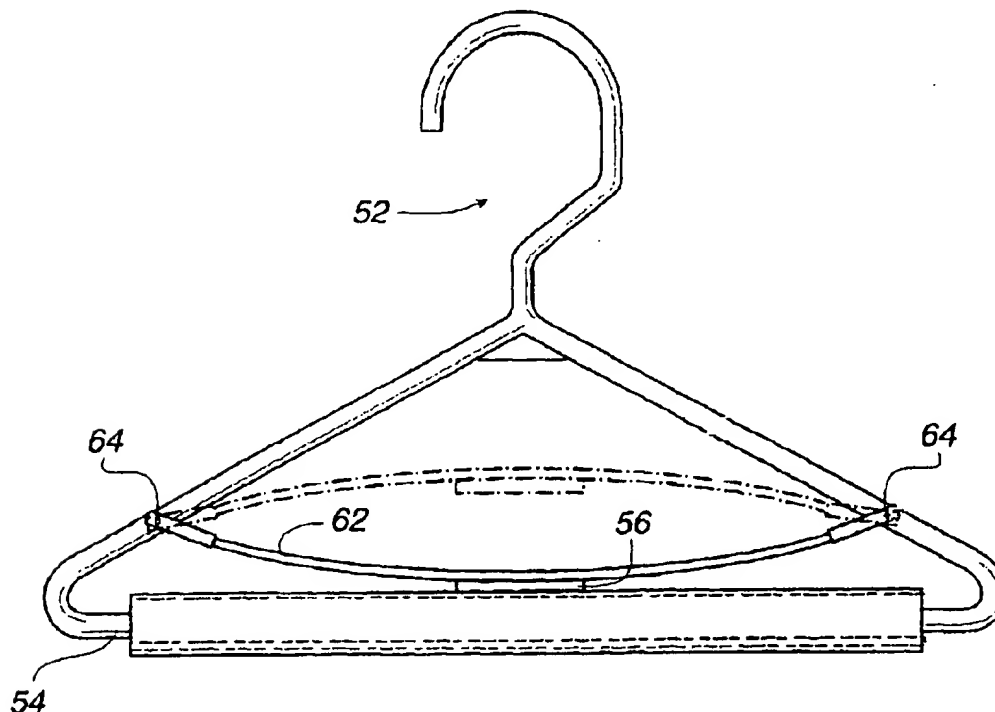
Primary Examiner—Bibhu Mohanty

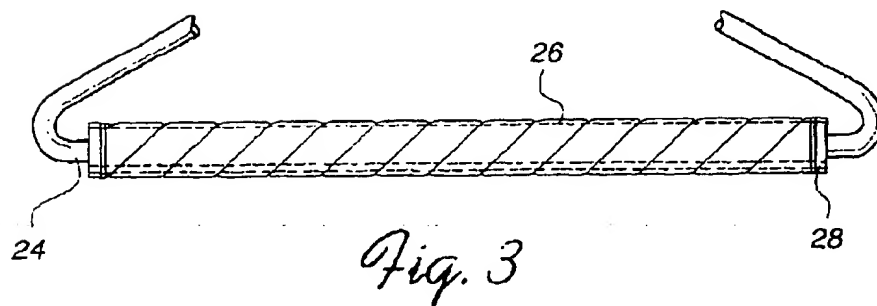
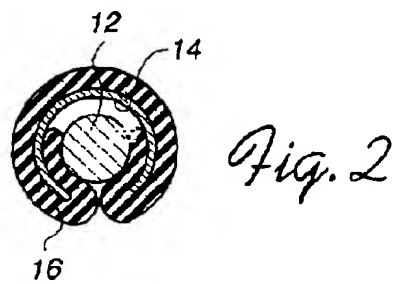
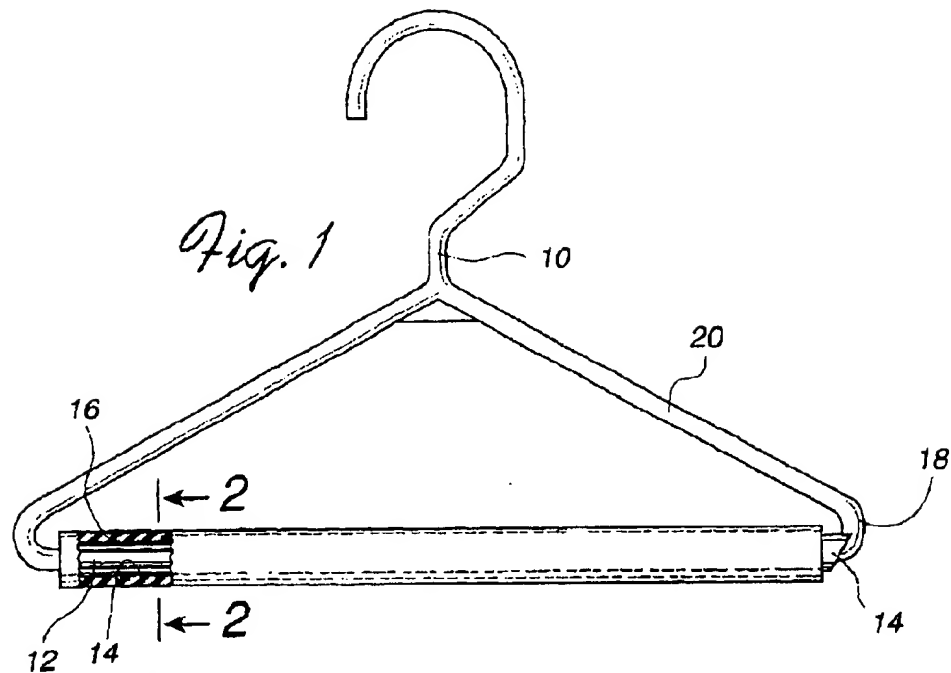
(74) *Attorney, Agent, or Firm*—Donald R. Boys; Central Coast Patent Agency, Inc.

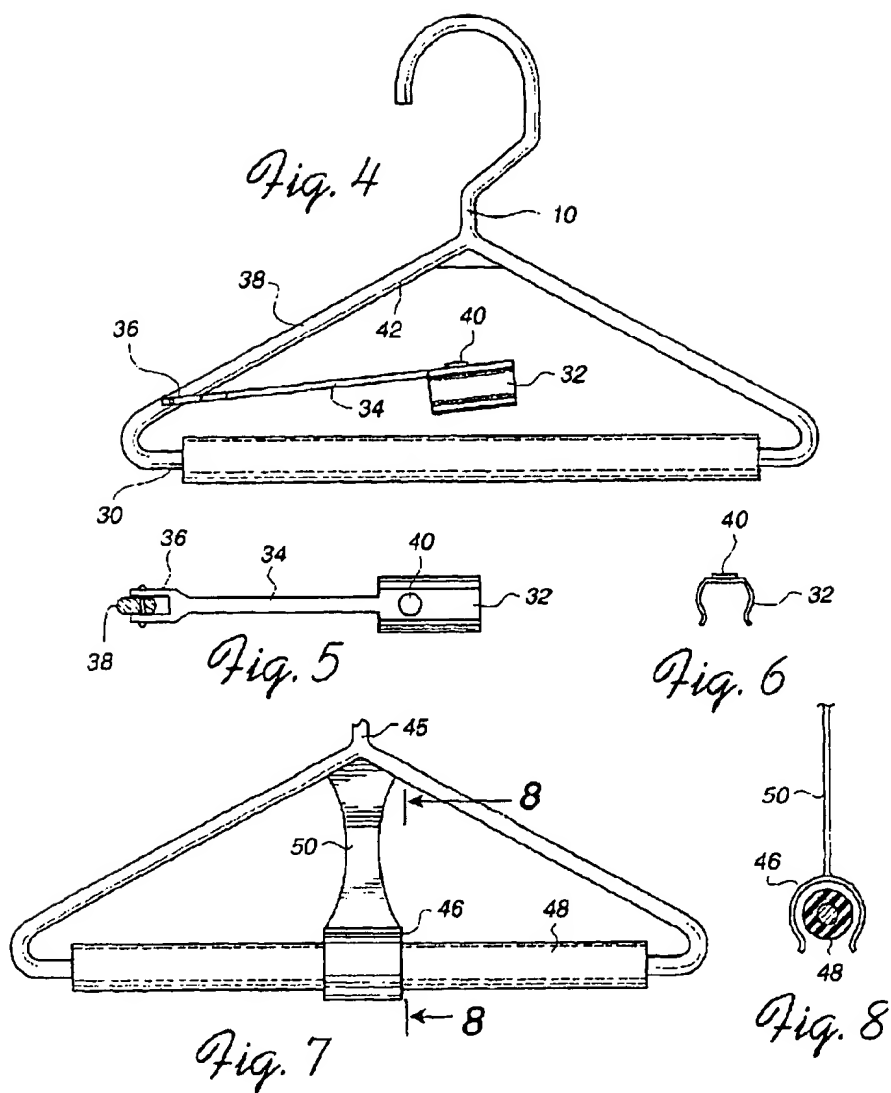
(57) **ABSTRACT**

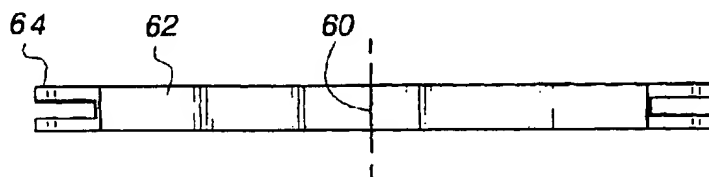
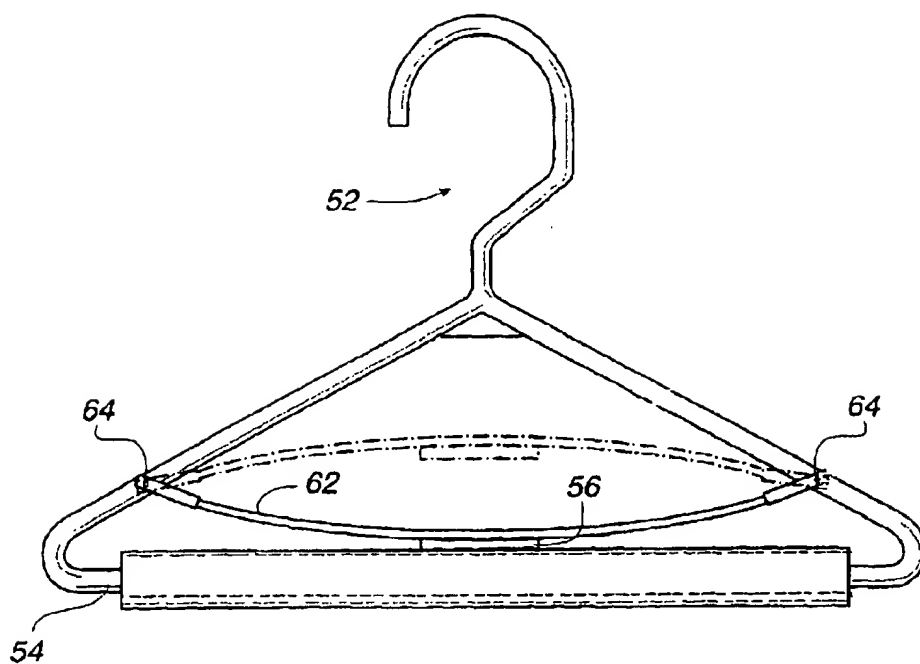
A clothes hanger has a hook for engaging a bar to support the change, a first and second side bar extending at substantially opposite angles from the hook, an horizontal bar extending between the side bars at ends of the side bars away from the hook, and a pliable compression strip having a length and opposite ends, one end engaging one of the side bars and the other end engaging the other of the side bars at engagement points on the side bars between the hook and the horizontal bar. The length of the pliable strip is greater than a straight line distance between the engagement points, such that the pliable strip, curving downward, urges against a portion of the horizontal bar, in a manner to secure an article of clothing against the horizontal bar.

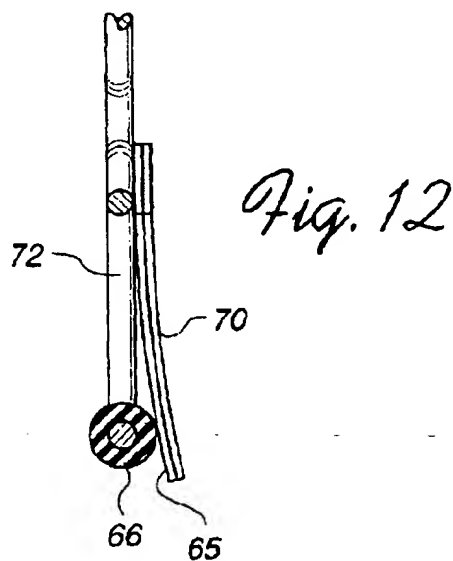
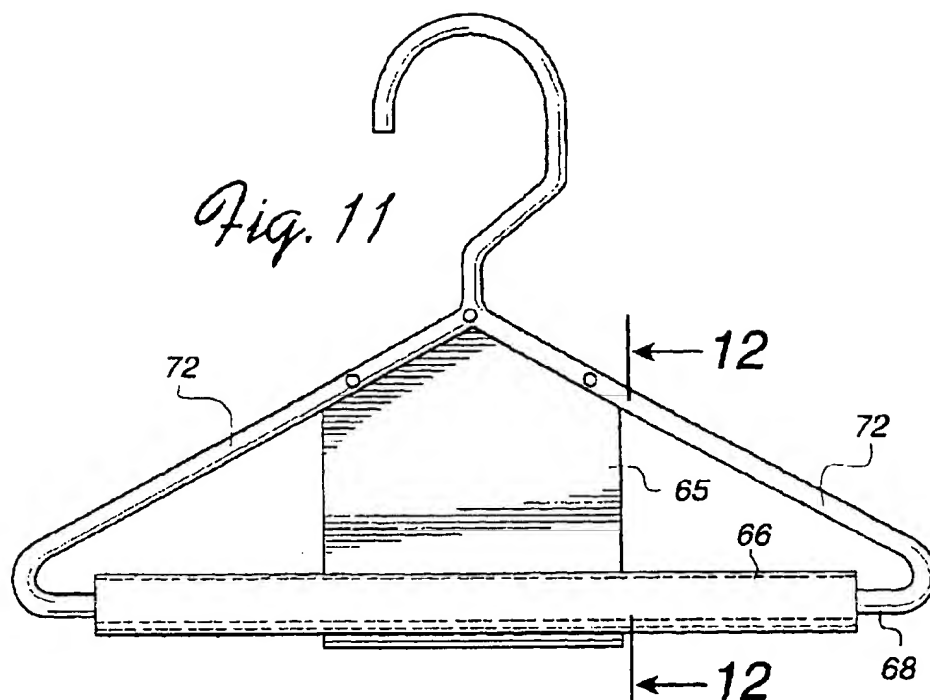
4 Claims, 4 Drawing Sheets











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NON-SLIP CLOTHES HANGERS**CROSS-REFERENCE TO RELATED DOCUMENTS**

The present application is a divisional application of, and claims priority to, application Ser. No. 09/507,909, filed Feb. 22, 2000, now U.S. Pat. No. 6,213,359 which claims priority to application Ser. No. 09/369,258 now U.S. Pat. No. 6,120,099. The disclosure of both application Ser. Nos. 09/507,909 and 09/369,258 are incorporated entirely herein by reference.

FIELD OF THE INVENTION

The present invention is in the area of hangers for clothing, and has particular relevance to apparatus for providing a non-slip characteristic to such apparatus.

BACKGROUND OF THE INVENTION

Slacks are purposely designed long to extend from the waste to the heels. Their length requires that they are stored unfolded by a special hanger that hangs the trousers from the cuffs or, more popularly, folded and hung across the horizontal bar of a conventional clothes hanger. Often the smooth slacks will slip from the horizontal bar so that the hanging of slacks becomes a task of balancing them on the bar. To counteract this tendency, many people and also retail establishments, use special hangers with a double horizontal rod, one bar for suspending the trousers, the other, a resilient rod that is secured at one end to the horizontal bar and clips to it at the other end to lock the suspended slacks between the bar and the rod. These hangers are fairly satisfactory in hanging trousers and slacks securely but causes a marked creasing of the fabric.

This invention is for a very inexpensive hanger for holding folded trousers and slacks, without any danger of slipping of the trouser legs, by covering the horizontal bar with plastic foam, such as polyurethane foam, a common, inexpensive material usually used for insulation or cushion padding and having a non-adhesive cellular structure that will grip the fabric.

With the polyurethane foam attached to the horizontal bar of a conventional clothes hanger, security clips may be added to the hangers for further securing the fabrics. These clips are particularly desirable when cuff-hanging or full length positioning of the trousers are desired.

SUMMARY OF THE INVENTION

In a preferred embodiment of the present invention a cloth hanger is provided, comprising a hook for engaging a bar to support the hanger a first and second side bar extending at substantially opposite angles from the hook, an horizontal bar extending between the side bars at ends of the side bars away from the hook, and a pliable compression strip having a length and opposite ends, one end engaging one of the side bars and the other end engaging the other of the side bars at engagement points on the side bars between the hook and the horizontal bar. The length of the pliable strip is greater than a straight line distance between the engagement points, such that the pliable strip, curving downward, urges against a portion of the horizontal bar.

In some embodiments the pliable strip is a plastic strip. Also in some embodiments engagement of the pliable strip to the side bars is accomplished by a pivot axis at each engagement point, the pivot axis engaging each of the side bar and the pliable strip. In these and other embodiments of

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engagement points on each side bar are preferably substantially equidistant from the hook. In some cases there is additionally a strip of foam material along a portion of the length of the pliable strip, such that the foam material urges against the horizontal bar. The foam material may be a plastic foam material. Further, the foam material may be shaped to engage the horizontal bar around a portion of the circumference of the bar.

In another aspect of the invention a method is provided for securing an article of clothing to a horizontal bar of a clothes hanger, wherein the horizontal bar extends between two side bars each extending at substantially opposite angles from a hook. The method comprising the steps of (a) engaging a pliable strip having a length greater than the straight-line length between two engagement points on the side bars at opposite ends of the pliable strip to each of the engagement points; (b) pushing the pliable strip to an upward curvature wherein the strip does not engage the horizontal bar; (c) placing a portion of the article of clothing over the horizontal bar; and (d) repositioning the pliable strip to a downward curvature to urge against the article of clothing placed over the horizontal bar.

In some embodiments the pliable strip is a plastic strip. Also in some embodiments, in step (a), engagement of the pliable strip to the side bars is accomplished by a pivot axis at each engagement point, the pivot axis engaging each of the side bar and the pliable strip. Preferably the engagement points on each side bar are substantially equidistant from the hook.

In some embodiments, in step (a), a strip of foam material is secured along a portion of the length of the pliable strip, such that the foam material urges against the horizontal bar with the pliable strip in a downward-curved position. The foam material may be a plastic foam material. Further, the foam material may be shaped to engage the horizontal bar around a portion of the circumference of the bar.

In embodiments of the invention, taught in enabling detail below, for the first time a hanger is provided with a snap-strip for securing clothing to an horizontal bar of a clothes hanger.

DESCRIPTION OF THE DRAWINGS

In the drawings which illustrate preferred embodiments of the invention:

FIG. 1 is a view of a clothes hanger with a plastic covered horizontal bar;

FIG. 2 is a cross section view taken along the lines 2—2 of FIG. 1;

FIG. 3 illustrates a horizontal bar covered with plastic foam tape;

FIG. 4 illustrates a hanger with a clip on a pivoted arm for securing fabrics on the plastic foam covered horizontal bar;

FIG. 5 is a plan view of the clip and arm of FIG. 4;

FIG. 6 is an end view of the clip of FIG. 4;

FIG. 7 illustrates a hanger with a clip suspended from on a pliable plastic band;

FIG. 8 is an sectional end view taken along the lines 8—8 of FIG. 7;

FIG. 9 illustrates a hanger with a pad suspended in the center of a pliable strip provided at each end to the frame of the hanger;

FIG. 10 is a plan view of the pliable strip and pad of FIG. 9;

FIG. 11 illustrates a hanger with a pad resiliently pressed against the side of the horizontal bar; and

FIG. 12 is a cross sectional view taken across the lines 12—12 of FIG. 11.

DETAILED DESCRIPTION

A conventional clothes hanger is generally molded of plastic in the form of a $\frac{1}{4}$ inch circular rod having a semicircular hanging hook at the top and having side bars angularly branching out to the ends of a straight horizontal rod or bar which is used to suspend folded trousers or slacks. This invention is for inexpensive methods for preventing the folded slacks from slipping from the horizontal bar of an inexpensive plastic hanger and includes covering an horizontal bar with plastic foam, such as polyurethane foam.

FIG. 1 illustrates a typical plastic hanger 10 with horizontal bar 12 covered with polyurethane foam. A section of the bar 12 is shown in section to illustrate along with an enlarged cross sectional view of FIG. 2, a preferred method of attachment of a strip of foam to the circular bar. In FIGS. 1 and 2 a length of stiff resilient plastic tubing 14 having a length approximately equal to the length of the horizontal bar 12 and a diameter of about $\frac{1}{4}$ inch, is longitudinally split over its entire length so that the split may be pried open to expose the interior surface of the tubing. A strip of $\frac{1}{2}$ inch thick foam strip 16 of the same length is wrapped around the exterior of the split tubing 14 and the edges of the foam strip are inserted into the split in the tubing. The horizontal bar 12 of the hanger is then forced into the foam covered split in the tubing 14. If desired, a thinner strip of foam strip 16 may be applied to a horizontal bar 12 by using a split resilient tubing of a smaller diameter.

Continued use with unbalanced loading of a foam covered horizontal bar may result in some rotation of the foam and its split tubing and a possible accidental dropping from the hanger. A simple and effective method of preventing rotation of a foam covering is to extend the split tubing at each end, as shown on the right end of the hanger 10 in FIG. 1, and to notch the ends of the top surface opposite the longitudinal split in the tubing 14 with a notch having a width equal to the diameter of the circular horizontal bar 12. When the split tubing 14 with foam covering 16 is applied to the horizontal bar 12, the two notched ends of the tubing 14 are forced into a non-rotational engagement with the curved section 18 of the hanger between the end arm 20 and the horizontal bar 12.

FIG. 3 illustrates the horizontal bar 24 of a clothes hanger wound with strips of plastic foam, such as polyurethane foam 26, that is merely secured at the ends of the form with plastic ties 28. This is a very simple design and does not require a split tubing.

The preferred method of applying plastic foam to a horizontal bar is to mold a tube of the plastic foam to the desired dimensions. Then split the plastic tube and slip it over the horizontal bar and cement it in place. The cross section view of the plastic foam would appear as in the sectional view of FIG. 8.

FIG. 4 illustrates a plastic foam covered horizontal bar 30 with an auxiliary security clamp 32 that holds slacks on the bar and is useful in preventing slipping if a full length of two or more pairs of trousers is desired. Clamp 32 is two to three inches in length and shaped similar to an inverted "U", as shown in FIG. 6, so that it loosely fits around the foam covered horizontal bar 30. It is attached to an arm 34 which, at the opposite end, is bifurcated 36 and pivotally pinned to a side arm 38 of a hanger. A small circular magnet 40 is cemented to the top of the arm 34 which magnetically couples to an iron tab 42 on the hanger side arm 38 to hold clamp 32 away from the foam covered horizontal bar 30

during loading of the hanger. Of course, the magnet 40 and tab 42 may be reversed and will operate the same.

FIG. 7 illustrates the foam covered horizontal bar 44 of a clothes hanger 45 with a security clamp somewhat similar to the clamp 32 of FIG. 4. In FIG. 7 the inverted "U" shaped clamp 46 loosely fits around the plastic foam covering 48 on the bar 44 as shown in the end view of FIG. 8. The plastic clamp 46 is suspended slightly above the surface of the foam 48 by a thin band of pliable plastic 50, such as polycarbonate, one end of which is cemented to the top exterior surface of the clamp, the opposite end being cemented to the junction of the side arms of the hanger.

FIG. 9 illustrates a clothes hanger 52 with a foam covered horizontal bar 54 having an foam security clamp 56 in contact with the top surface of the plastic foam 58 and cemented to the surface of the center 60 of a resilient strip 62 that is bifurcated at both ends as shown in plan view of the strip in FIG. 10. The resilient strip 62 has an overall length, including the bifurcated ends, two to three inches less than the length of the horizontal bar 54 and its bifurcated ends 64 are formed to be pivotally pinned to the side bars of the hanger 52.

The resilient strip 62 is attached to the hanger 52 with the foam surface of the clamp 56 in light contact with the surface of the foam covering 58 at the middle of the horizontal bar 54. Then each bifurcated end 64 of the resilient strip 62 is bent up and pivotally pinned to a side bar of the hanger 52. The resiliency of the strip 62 makes it easy to lift the clamp 56 from the bar; lifting the strip on either side of its center 60 will urge the strip into the form of a "stretched S", causing the strip 62 to spring upward into an arch, shown by the broken lines. The advantage of this type of security clamp is that fabric suspended in the hanger is held by foam from above as well as from below, making it ideal for clamping materials that normally side such as rayons and silks and when it is desired to hang slacks in a full-length position.

FIG. 11 illustrates still another clamp for a clothes hanger with a plastic foam covered horizontal bar. In FIG. 11, a thin pad of foam 65 such as polyurethane foam, is lightly held against the foam covering 66 on the horizontal bar 68 by a plastic sheet backing 70 which is secured to the angularly branching side bars 72 of the hanger near their junction. The width of the foam pad 65 and plastic backing 70 should be at least four inches and its length should extend below the foam covering 66 on the horizontal bar 68 as shown in the sectional view illustrated in FIG. 12. The advantage of this type of security clamp is that slacks and trousers may be easily and very rapidly hung and removed from the cuffs while preserving the crease.

I claim:

1. A clothes hanger comprising:

- a hook for engaging a bar to support the hanger;
- a first and second side bar extending at substantially opposite angles from the hook;
- an horizontal bar extending between the side bars at ends of the side bars away from the hook; and
- a thin, flat pliable compression strip with a rectangular cross-section, the strip having a length and opposite, bifurcated ends, one bifurcated end spanning the first of the side bars, and pivotally engaging a pivot pin passing through the first of the side bars, and the other bifurcated end spanning the second of the side bars, and pivotally engaging a pivot pin passing through the second of the side bars, the pivot pins positioned at engagement points on the side bars between the hook and the horizontal bar;

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wherein the length of the pliable strip is greater than a straight line distance between the engagement points, such that the pliable strip, curving downward, urges against a portion of the horizontal bar.

2. The clothes hanger of claim 1 wherein the pliable strip is a plastic strip.

3. The clothes hanger of claim 1 wherein the engagement points on each side bar are substantially equidistant from the hook.

4. For a clothes hanger having a hook, side bars extending downward from the hook, and an horizontal bar connecting to the side bars at ends opposite the hook, a method for enhancing ability of the clothes hanger to hold a garment, comprising the steps of:

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(a) forming a hole through each of the side bars at a point between the hook and the horizontal bar;

(b) engaging a pivot pin in each of the holes formed in step (a) such that the pins extend on each side of the side bars; and

(c) pivotally attaching each of two bifurcated ends of a thin, flat strip having a length greater than the distance between the holes formed in step (a), to the pins engaged in the holes, such that the bifurcated ends of the strip span the respective side bars, and the strip urges along a portion of the horizontal bar.

* * * * *

[54] **MOLDED GARMENT HANGER WITH CLAMPING TROUSER BAR**

[75] Inventor: John H. Batts, E. Grand Rapids, Mich.

[73] Assignee: John Thomas Batts, Inc., Zeeland, Mich.

[22] Filed: Apr. 28, 1971

[21] Appl. No.: 138,064

[52] U.S. Cl. 223/91

[51] Int. Cl. A47j 51/14

[58] Field of Search 223/88, 91, 96, 90, 223/89

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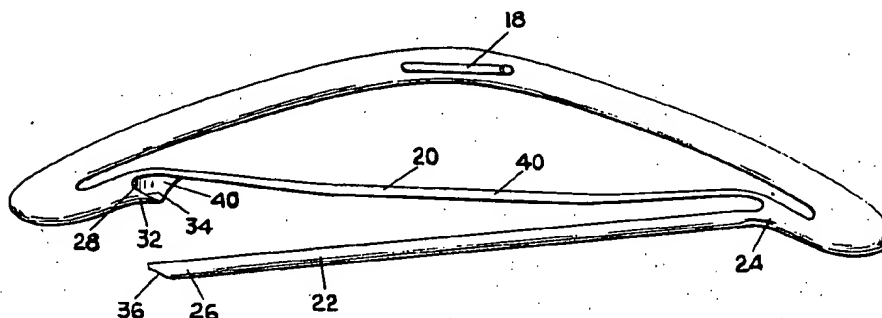
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Primary Examiner—George H. Krizmanich
Attorney—Price, Heneveld, Huizenga & Cooper

[57] **ABSTRACT**

An integrally molded garment hanger having a conventional contoured body which includes a header portion, and a pair of downwardly extending curved divergent legs. The body also includes a cross bar interconnecting the legs at their extremities and a clamping bar cantilevered to the end of the cross bar adjacent one of the legs and extending adjacent the front face of the cross bar in a somewhat side-by-side relationship. A keeper is provided at the end of the cross bar adjacent the other leg for receipt of the free end of the cantilevered clamping bar. The cross bar is arched toward the clamping bar so that when the latter is secured by the keeper, both the cross bar and the clamping bar are pressed against each other to forcibly deflect therein creating a positive clamping force on a garment positioned therebetween. The entire structure, with the exception of the support element, may be integrally molded as a single component in a two-piece mold structure opening by simple movement of the mold valves in opposite directions.

15 Claims, 6 Drawing Figures



Patented July 17, 1973

3,746,223

2 Sheets-Sheet 1

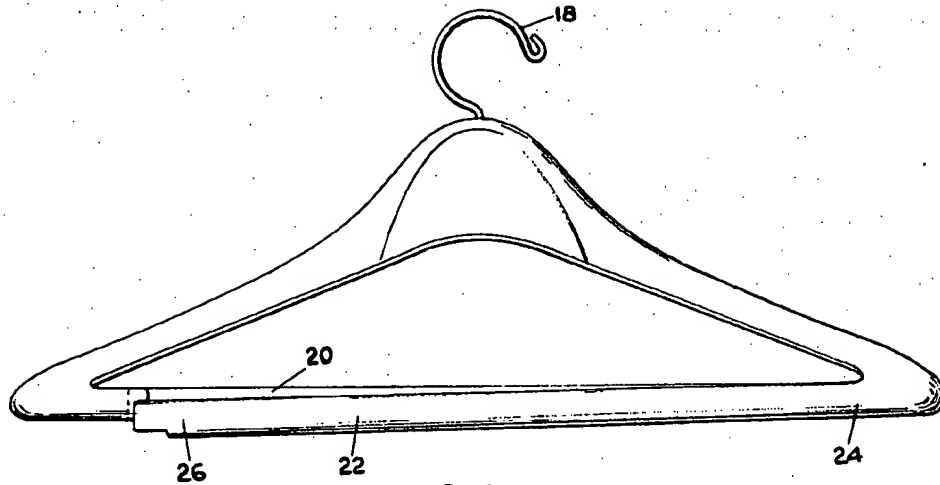


FIG. 1

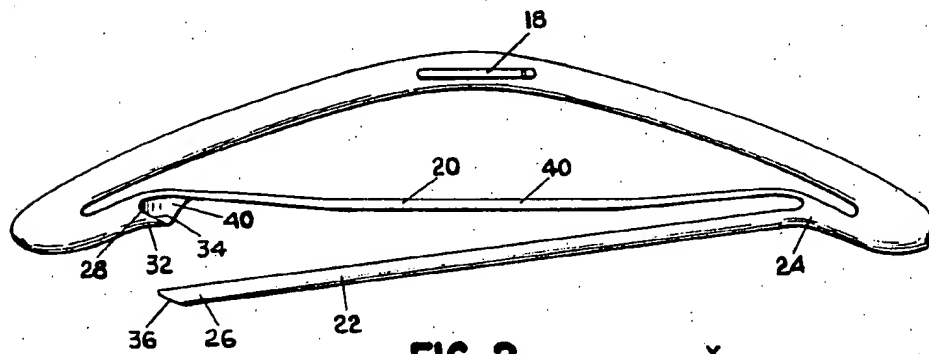


FIG. 2

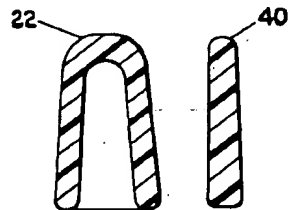


FIG. 4

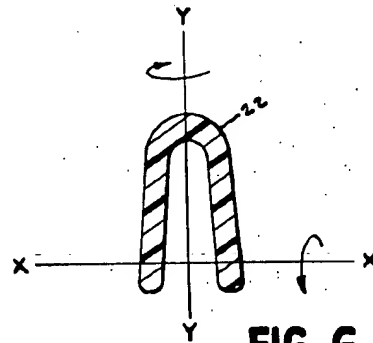


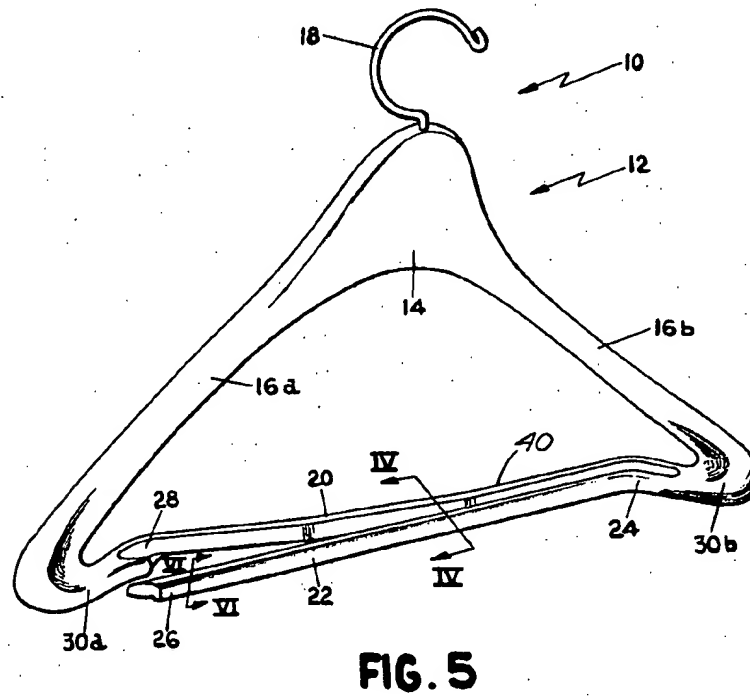
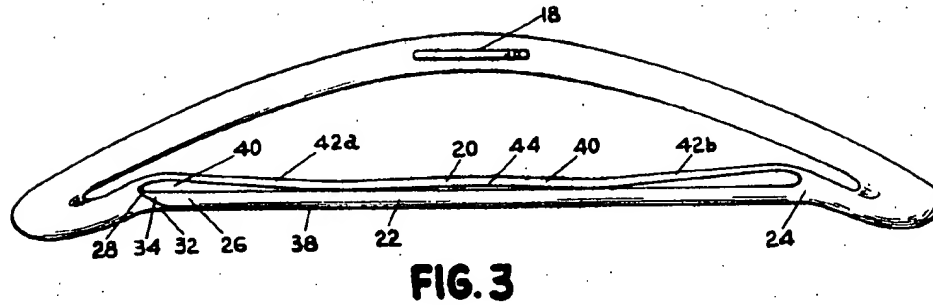
FIG. 6

INVENTOR
JOHN H. BATTS
BY *Grice, Hunsfeld*
Shizuka & Cooper
ATTORNEYS

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2 Sheets-Sheet 2



INVENTOR
JOHN H. BATTS
BY *Price, Hennefeld*
Shinzinger & Cooper
ATTORNEYS

MOLDED GARMENT HANGER WITH CLAMPING TROUSER BAR

BACKGROUND OF THE INVENTION

With the advent of plastic and, particularly plastic molding processes, a new structural material has become available which offers many advantages in the field of garment hangers. Plastic hangers are lighter in weight, relatively inexpensive, structurally sound, and require little or no finishing separate from the molding process itself. With the proper choice of molds, it has become possible to produce hangers conforming generally to the contour of the shoulder section of a suit, coat or the like whereon garments can be hung for long periods of time without fear of their becoming wrinkled, stretched and the like from portions of the hanger protruding unnaturally into them.

Molded plastic hangers have become widely accepted in the industry. The primary objective of a molded plastic hanger is to mold the header and leg sections such that they are a hollow, shell-like structure, the internal cavities which are concealed during usage of the hanger. Such hollowing, markedly reduces the amount of plastic required to mold a particular hanger configuration and additionally inherently reduces the weight of the resulting item. In fact, only by so constructing the hanger can the structural and economic advantages of plastic, as opposed to wood, for example, be fully realized. The key to an inexpensive production model, however, is to provide a relatively inexpensive two-piece mold which molds the hanger by molds opening and closing parallel to the vertical axis of the hanger. Also, once additional camming or secondary mold movement is required, production costs increase markedly for a number of reasons.

The principles of hanger construction on permitting this type of molding a one-piece garment hanger body having an integral trouser supporting bar are taught by Letters Patent No. Re. 26,949 entitled CONTOURED ONE-PIECE HANGER, reissued Sept. 8, 1970.

This invention relates specifically to a hanger having a one-piece body of the type described in Ser. No. Re. 26,949 which, in addition thereto, includes an integral clamping bar and latch which cooperates with the trouser bar and is capable of being molded as taught in the reissue patent. It is recognized that one-piece hangers having a trouser support and clamp bar are known such as is taught in U.S. Pat. No. 3,402,866 entitled "Clothes Hanger" issued Sept. 24, 1968, and U.S. Pat. No. 3,435,999 entitled "Suit Hangers With Double Bar" issued Apr. 1, 1969, and U.S. Pat. No. Des. 213,405, entitled "Garment Hanger" issued Feb. 25, 1969. However, this art teaches positioning the clamping bar below the cross bar. There are several disadvantages to this construction which this invention overcomes. A principle disadvantage is the inability to mold such a hanger with a two-piece mold opening and closing parallel to the vertical axis of the hanger. Another major disadvantage is that such an arrangement is particularly inconvenient for mounting and removing the garments from the hanger. Another disadvantage to the clamping bar being positioned below the cross bar is that it requires a bulkier cantilevered joint to provide the same strength at the joint since the clamping bar must be moved a greater vertical distance to be lifted up over the latch means. Also, the latch means provided by the prior art to clamp the bar is complex and

requires additional camming in the molding operation such that it is no longer a simplified two-piece mold.

SUMMARY OF THE INVENTION

This invention discloses a body for a garment hanger adapted to suspend from a support, which body includes a header portion having means for securing a support engaging element thereto and a pair of curved or contoured, diverging legs extending downwardly and outwardly from the sides of the header portion, the legs and header portion being generally hollow shells opening downwardly. The legs are interconnected by a cross bar and a clamping bar is cantilevered to one end thereof and detachably connected at the other end by a latch means provided on the other end of the cross bar. At least one of the bars is shaped to provide a portion projecting toward the other of said bars a distance greater than the remainder thereof so that when the clamping bar is engaged with the latch means, said portion deflects at least one of the bars to provide positive clamping pressure between the bars of a garment positioned therebetween. The header portion, legs, cross bar, clamping bar, and latch means are all integral with each other forming a one-piece body.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of the novel garment hanger;

FIG. 2 is a plan view showing the trouser bar open;

FIG. 3 is a plan view showing the trouser bar closed;

FIG. 4 is an elevational view in section taken along the plane IV—IV of FIG. 5;

FIG. 5 is a perspective view of the garment hanger; and

FIG. 6 is a cross-sectional view of the trouser bar taken along line VI—VI in FIG. 5.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in detail, FIG. 5 shows a garment hanger 10 having a body 12 comprising an enlarged header portion 14 from which extend legs 16a and 16b in diverging fashion. As shown best in FIG. 4, legs 16a and 16b extend downwardly and outwardly from the sides of the header portion and, additionally, curve forwardly from and out of the general plane of the header portion to provide a generally apparel-conforming contoured configuration. This general configuration is taught in U.S. Pat. No. 980,907, entitled "Garment Hanger," issued Jan. 10, 1911. A conventional hook 18 is pressure fitted into or otherwise suitably secured to header portion 14 after the body has been molded in accordance with this invention. Suspended between connecting the extremities of legs 16a and 16b is a cross bar 20. The cross bar 20 may be used to support garments such as a pair of trousers or the like. This however, is not the preferred use. In the preferred usage it serves both to brace and reinforce its legs 16a and 16b and as a pressure generating member in cooperation with the clamping bar 22.

The clamping bar 22 is cantilevered at one end 24 to the extremity of one of the ends of the cross bar. In the drawings, it is shown as being cantilevered adjacent leg 16b. The opposite end 26 of the clamping bar 20 is free and the bar extends longitudinally adjacent cross bar 20 in a horizontal plane for movement into and out of clamping engagement with the cross bar. The free end

26 receivable and removable from a latch means 28 which will be described in more detail hereinafter. The clamping bar is so designed that in its free state, it diverges from the cross bar and thus must be forcibly deflected before it can be latched. However, when the free end 26 is positioned in latch means 28, the clamping bar is secured in its clamping position with relation to cross bar 20.

A pair of transitional portions 30a and 30b extend inwardly and in the preferred embodiment are offset rearwardly from the extremities of legs 16a and 16b respectively. These connect the ends of the cross bar with the legs. The point at which the clamping bar is cantilevered to the cross bar is at the inner end of the transition 30b while the latch means 28 forms the inner end of the transition portion 30a. Thus, in the preferred embodiment, the length of the clamping bar 22 which is normally used to support a pair of trousers, slacks or the like is less than the overall distance between the extremities of the legs 16a and 16b. This provides the additional advantage of helping to center the garment with respect to the body hook 18 so that when the hanger is supported, there is less chance of the garment being positioned off-center.

Referring now specifically to FIGS. 2 & 3, clamping bar 22 is shown to be movable in a fore and aft direction away from cross bar 20 and in its free state the free end is normally conveniently spaced away from the latch and transition section 30a so that a garment such as a pair of trousers can be facily slipped over the clamping bar by passing the end of the bar through the fold in the garment. With a garment so mounted, the bar 22 is movable to clamp the garment between the two bars. The cross bar is secured in this position by inserting the free end 26 into latch means 28. It will be recognized that the garment can be folded over the cross bar rather than the clamping bar. This is a matter of choice and doesn't change the function of the hanger.

The preferred latch 28 comprises a pocket opening upwardly and having a side or lip 32 which extends longitudinally in the direction of the bars. This lip serves as a keeper to retain the clamping bar when it is latched. The clamping bar has to be capable of sufficient deflection to permit the free end to be lifted over the keeper 32. The bottom of the latch pocket is closed by the stop 40 which provides positive support for the free end of the clamping bar 22 in the latched position.

Turning to the configuration of both the cross bar and trouser bar, the clamping bar is preferably of a general, inverted U-shape opening downwardly as shown in FIG. 6. It will be appreciated that as a cantilevered structure, the clamping bar is capable of a greater degree of bending about the axis X—X shown in FIG. 6 than about the axis Y—Y. This is one particular advantage in positioning the trouser bar adjacent the cross bar in the horizontal plane rather than below the cross bar as shown in the prior art. To achieve the same strength in a bar of similar configuration positioned below the cross bar, as in the prior art, the extremities of the legs 16a and 16b would have to be extended and reinforced, increasing the bulk and cost of the hanger.

Turning to cross bar 20, it will be appreciated that to effectively clamp a garment between the cross and clamping bars, a positive clamping force must be exerted upon the garment by the two bars. One of the drawbacks of the prior art, in addition to others men-

tioned, has been the failure to provide an effective clamping force on the garment to prevent displacement along the bars.

This problem is eliminated by shaping the cross bar into a flattened arch configuration with a mid-portion 40 of the bar offset toward the clamping bar. In the preferred embodiment shown in FIGS. 2 and 3, rather than an arcuate configuration, two flat portions 42a and 42b extend at an angle from the transition portions 30a and 30b of the hanger to offset the mid-portion 40. The mid-portion 40 has a flat outward face 44. With this configuration, when the clamping bar is moved into its closed position as shown in FIG. 3, both the clamping and cross bars are deflected and caused to forcibly press against each other. The added thickness of the garment between the bars further increases this deflection and thus the clamping pressure. It will be appreciated that the clamping bar could be given the offset configuration either in addition to or in place of the use of this configuration on the cross bar. This deflection also serves positively to secure the latch.

The resultant body 12 provides a garment hanger of an integral one-piece construction. To permit molding in a two-piece mold along a vertical plane with respect to the hanger as shown in FIG. 1, the various components described above are arranged as follows. The header portion 14 would lie in a generally vertical plane when the body is suspended from a support engaging element as shown in FIG. 4. The diverging legs 16a and 16b extend downwardly and outwardly from the sides of the header portion and forwardly from and out of the general plane of the header portion. The connector bar 20 which connects the extremities of each of the legs extends inwardly with respect to the extremities and are offset forwardly with respect to all segments of the legs thereabove in addition to being displaced forwardly from all segments of the header portion and legs. Finally, the clamping bar 22 is offset forwardly with respect to the cross bar and all segments of the header portion and legs. The same is true of the structure defining the latch pocket 28. Only by positioning the various structural components of the hanger with respect to one another such that all segments of the header portion, legs, cross bar, clamping bar and latch means are forwardly offset with respect to one another can the mold be separated from the hanger without the hanger being hung up in the mold.

A number of plastic materials such as styrene, polypropylene and mixtures of various plastic materials may be used for this hanger. The material must produce a hanger in which the clamping and cross bars can be deflected without injurious effect and which has insufficient give to produce noticeable loss of clamping pressure over extended periods of time. At the same time it is necessary that the hanger body have sufficient strength to withstand impact and resist deformation under the weight of the garment.

The advantages of the instant invention will be readily apparent to those skilled in the art. In accordance with this invention it is now possible to integrally mold in a one-step operation, using a simple two-piece mold, an entire garment hanger body having a trouser clamping bar. This is accomplished while keeping the required amount of plastic to a minimum.

While a preferred embodiment of this invention has been illustrated in detail, it will be readily apparent to those skilled in the art that many other embodiments

may be conceived and fabricated without departing from the spirit of this specification and the accompanying drawings. Such other embodiments are to be deemed as included within the scope of the following claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A one-piece molded plastic clothes hanger body adapted to be suspended from a support, said hanger body having a header portion and a pair of opposed forwardly and downwardly curved garment supporting legs; a cross bar connecting the extremities of said legs and integral therewith; the improvement in said hanger comprising: a clamping bar having a free end and a fixed end; the fixed end of said clamping bar being integral with said cross bar adjacent one of said legs and cantilevered therefrom; said clamping bar being in the same general horizontal plane as said cross bar and adjacent the forward face thereof; said clamping bar being movable from a free position with its free end spaced forwardly from said cross bar to a clamping position where it exerts pressure on a garment between the bars and latch means integral with the cross bar adjacent the other of said legs for securing said clamping bar in garment clamping position, said cross bar and clamping bar being offset forwardly with respect to all portions of said body thereabove whereby said hanger body may be integrally molded from plastic as one piece in a two-piece mold.

2. A clothes hanger according to claim 1 wherein one of said cross and clamping bars is resilient, and one of said bars is shaped so that a portion of said bar is offset toward the other of said bars a distance sufficient to require at least one of said bars to be deflected when said clamping bar is latched, said deflection of said bar creating a positive clamping force therebetween.

3. A clothes hanger according to claim 2 wherein said cross bar is generally bow-shaped with the mid-portion being generally flat so that said clamping force is applied at at least two spaced positions along said bars.

4. A clothes hanger according to claim 1 wherein said clamping bar may be bent vertically as well as horizontally relative to said cross bar, said latch means being an upwardly opening pocket formed in said cross bar for receipt of said free end of said clamping bar, said pocket having a closed bottom side for supporting said clamping bar.

5. A clothes hanger according to claim 4 wherein said clamping bar is biased towards said free position, wherein it diverges from said cross bar, and a side of said pocket prevents said trouser bar from being brought into said clamping position with said cross bar unless the free end of said support bar is first lifted up over said pocket side so that when said bar is positioned in said clamping position, said free end is biased against said pocket side.

6. A clothes hanger according to claim 1 wherein said clamping bar remains in the same general horizontal plane as said cross bar when said clamping bar is in said free position.

7. A one-piece molded plastic body for a garment hanger adapted to be suspended from a support, said body having an enlarged header portion, and means for securing a support engaging element thereto, said header portion lying in a generally vertical plane when said body is suspended from a support engaging ele-

ment; and a pair of diverging legs extending downwardly and outwardly from the sides of said header portion, each of said legs extending forwardly from and out of the general plane of said header portion, each of said legs and header portion being generally hollow shells opening downwardly and a cross bar integral with and connecting the extremities of each of said legs, the extremities of said cross bar extending inwardly with respect to the extremities of said legs and being offset forwardly with respect to all segments of said legs thereabove, the remainder of said bar being displaced forwardly from all segments of said header portion and legs, the improvement in said hanger body comprising: a clamping bar integral with and cantilevered at one of its ends from the extremity of one of said diverging legs, the other end of said clamping bar being free and engageable with locking means on the extremity of said other of said legs so that when said free end is engaged in said locking means, said clamping bar and cross bar provide a clamping force therebetween to positively clamp a garment between said cross bar and clamping bar, said clamping bar seating against the front face of said cross bar and moving in a horizontal plane with respect thereto, said clamping bar being offset forwardly with respect to all segments of said legs thereabove and displaced forwardly from all segments of said header portion, legs and cross bar whereby said body can be molded in a two-piece mold.

8. The body for a hanger as set forth in claim 7 wherein said bar is a generally hollow shell opening generally downwardly.

9. The body for a hanger as set forth in claim 7 wherein said body includes a transition portion at the end of each of said diverging legs, said transition portion being continuous with and following the curvature of said legs, the extremities of said cross bar being integral with the inner face of said transition portion, and the cantilevered end of said clamping bar likewise being integral with the inner face of one of said transition zones and said locking means being integral with the inner face of said other transition zone portion.

10. The body for a hanger as set forth in claim 7 wherein one of said cross and clamping bars are shaped so that a portion of said bars projects toward the other of said bars a distance greater than the remainder thereof such that when said clamping bar is locked into abutment with said cross bar, said portion projecting towards said other bar causes said bars to flex against each other to provide a positive clamping force therebetween.

11. The body for a hanger as set forth in claim 9 wherein said cross bar is generally bow-shaped with the mid-portion being generally flat so that said clamping force is applied at at least two spaced along said bars.

12. The body for a hanger as set forth in claim 7 wherein said clamping bar is movable relative to said cross bar both vertically and horizontally, and said locking means includes an upwardly opening pocket adjacent the extremity of said other downwardly extending leg and integral therewith, said pocket including a side preventing said clamping bar from being brought into said clamping position with said cross bar unless the free end of said clamping bar is first lifted up over said pocket side, said clamping bar when so lifted and received by said pocket being locked into said clamping position.

13. The body for a hanger as set forth in claim 11 wherein the free end of said clamping bar is beveled and the internal face of said pocket side is similarly shaped so that when said clamping bar is received in said pocket, the transition between said clamping bar face and outer pocket side face is relatively continuous and smooth.

14. A one-piece molded plastic hanger body having a header portion and a pair of downwardly and forwardly curved legs, the extremities of said legs being integral with and connected by a bar, the improvement in said hanger comprising: said bar being bifurcated into a backing portion and a clamping portion, said portions being integral adjacent one of said legs of said

body; said clamping portion having a free end and a latch adjacent the other of said legs for securing said free end of said clamping portion; said clamping portion being forward of said backing portion and movable forwardly and rearwardly with respect thereto; said bar being so shaped that said portions thereof must be forcibly deflected to engage said free end of said clamping portion to said latch.

15. The molded hanger body described in claim 14 wherein all vertically offset portions thereof are also offset horizontally such that said hanger body may be molded in a two-piece mold having only one movable portion and removable therefrom without hang-up.

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United States Patent

Becca

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[54] **GARMENT HANGER**

[72] Inventor: **Dante Becca**, Via Bonistallo, 3, Empoli, Firenze, Italy

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Nov. 12, 1969 Italy4856-A/69

[52] U.S. Cl.223/91

[51] Int. Cl.A47J 51/14

[58] Field of Search.....223/85, 93, 96, 90, 91

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Primary Examiner—Jordan Franklin

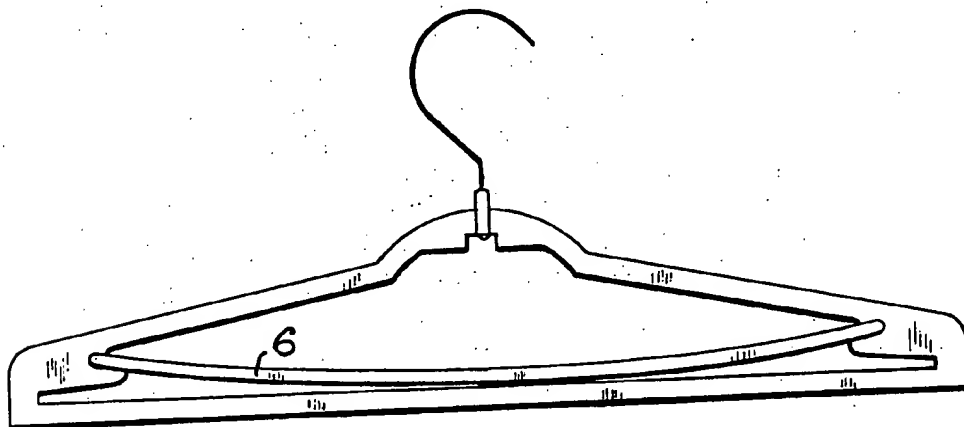
Assistant Examiner—George H. Krizmanich

Attorney—Waters, Roditi, Schwartz & Nissen

[57] **ABSTRACT**

A garment hanger comprises a frame of triangular form with inclined arms connected by a hanger bar. The frame is internally open and supports a flexed rod in the opening which is movable between a first position in which the rod is disengaged from the bar and permits unimpeded placement of a garment folded on the bar and a second position in which the bar can be manually pushed into engagement with the garment to clamp the same against the bar.

6 Claims, 4 Drawing Figures



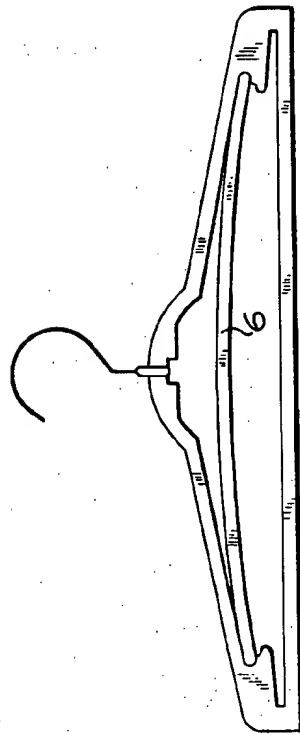


FIG. 3a

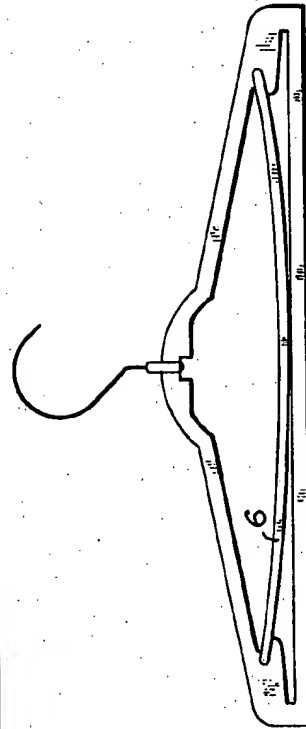


FIG. 3b

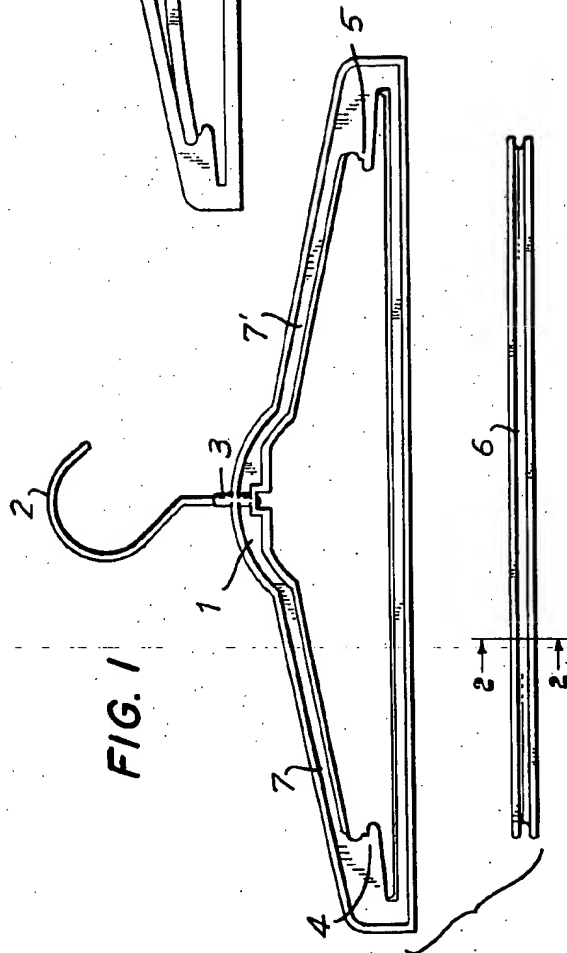


FIG. 1

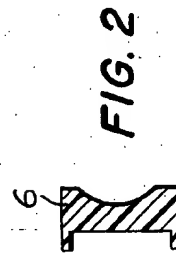


FIG. 2

GARMENT HANGER

BRIEF SUMMARY OF THE INVENTION

The invention relates to a garment hanger and particularly to a hanger on which a garment can be clamped.

The widespread use of garment hangers for placing and storing garments in closets and for transporting them in special carriers had led to the creation of various types. In particular, in the fashion industry, in order to solve the problems connected with the transportation of garments, use is made of portable hangers which must be lightweight, easy to use, low in cost and of minimum overall size, besides, of course, ensuring the correct placement and storage of a garment hung in such a way that it is firmly supported and prevented from moving.

An object of the present invention is to provide a hanger which possesses all the requirements listed above while also being constructed to afford a structural and functional construction which promotes its use particularly as a hanger for transporting trousers. In fact, the hanger is provided with a locking means constituted in such a way as to form a permanent elastic lock which, under all circumstances, prevents longitudinal slipping or lateral sliding of trousers on the hanger, without causing any damage to the material.

According to the invention, the garment hanger comprises a frame including a portion on which a garment such as trousers can be foldably suspended, and a flexed rod supported in said frame for movement between a first position away from said portion to enable placement of the garment on said portion without interference, and a second position in which the flexed rod resiliently clamps the garment against said portion.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an elevation view of a hanger according to the invention showing a rod thereof separated from a frame thereof;

FIG. 2 is a sectional view on enlarged scale taken on line 2-2 in FIG. 1; and

FIGS. 3a and 3b diagrammatically show the hanger with the rod in inoperative and operative positions respectively.

DETAILED DESCRIPTION

Referring to the drawing, the garment hanger comprises a rigid frame 1 of generally triangular shape, preferably made of plastic material and open internally. The frame is equipped with a central metal hook 2 rotatably housed in an appropriate tubular seat 3.

At the juncture between the inclined arms 7, 7' of the frame and the lower bar 8 thereof, there are two inwardly projecting protrusions 4, 5 defining seats for receiving and supporting the ends of an elastic rod 6. For this purpose, the rod is equipped with two fork-type ends which make insertion thereof between the two protrusions 4 and 5 extremely easy, despite the fact that the straight-line distance between the two seats is less than that of the rod itself. The rod 6, once mounted, is therefore subjected to axial compression which causes it to flex or bend, forcing it to assume either of the positions shown in FIGS. 3a and 3b. The shift of the rod from either position can be effected

manually and is made easier by the presence of the forked ends. The arms 7, 7' of the hanger are inclined so as to allow the flexing of the rod 6, particularly in the rest position, namely the position of non use, as shown in FIG. 3a. The cross-section of the rod 6 is shown in FIG. 2 as having two laterally spaced engaging portions for allowing contact, at least along part of its length, with the folded trousers inserted between the rod 6 and the bar 8 of the hanger, without leaving any imprints in the material or presenting a catch for possible long-hair fabric. The rod is recessed between the laterally spaced engaging portions in conformity with a domed shape upper surface of the bar 8. The cross-sectional shape of the bar 8 and the arms 7, 7' are directly indicated thereon in FIG. 1 and show generally a web construction with reinforcement flanges thereon.

The two laterally spaced engaging portions on bar 8 serve as a means to hold the garment on the bar and consistent with the above the cross-section of the rod 6 can be selected as a function of the type of fabric of the trousers to be supported. In particular, the side which is to contact the fabric may present a single or double edge, with sharp corners, or with rounded, knurled corners or corners equipped with small teeth in order to keep the trousers locked in position without, however, damaging them or presenting a catch or permanently creasing the material.

The use of the hanger is as follows:

The rod 6 is manually pushed to the raised position and is flexed thereat as shown in FIG. 3a. The trousers are introduced into the opening in frame 1 and rested in folded position on the bar 8. Then the rod 6 is manually pushed to its operative position as shown in FIG. 3b whereat the trousers are locked permanently between rod 6 and bar 8 without possibility of either slipping laterally, even if the hanger should be tilted, or of sliding longitudinally, even if the trousers are pulled. The elastic clamping force exerted by the rod in the operative position is sufficient to keep the trousers locked in place, but is not so large to mar or leave imprints on the material.

In practice, the details of construction may vary as to shape, size, arrangement of the elements, composition of the materials used, without, however, departing from the scope of the invention as defined in the appended claims. Thus, for example, the rod 6 can be replaced by two arms of suitable length, each of which is joined at its base to the hanger in the region of the protrusions 4 and 5 and arranged parallel and at a short distance from the bar 8 such that there is still an elastic force applied by the arms on an inserted pair of trousers throughout their length although they do not completely cover the width of the trousers; the distance of such arms from the element 8 is determined as a function of the thickness of the trousers to be held.

What is claimed is:

1. A garment hanger comprising a frame including a portion on which a garment can be foldably suspended, and a flexed, resilient rod having opposite ends detachably supported in said frame for movement between a first position away from said portion to enable placement of the garment on said portion without interference, and a second position in which the flexed rod resiliently clamps a garment against said portion, said frame including inner protrusions defining seats

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for the ends of the rod, the protrusions being spaced at a distance from one another which is less than the length of the rod, said ends of the rod being of fork shape engaging the protrusions under pressure while being separable therefrom.

2. A garment hanger as claimed in claim 1 wherein said protrusions are integral with said frame and are constituted as opposed webs with U-shaped indentations facing one another, said fork shaped ends of the rod engaging said webs at the U-shaped indentations and having flanks overlapping the webs.

3. A garment hanger as claimed in claim 1 wherein said frame is of generally triangular form with slanted lateral arms and a flat bar joining the arms and constituting said portion on which the garment can be foldably suspended, said frame being open within the

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arms and bar, said protrusions being located at the juncture between the bar and arms and integral therewith and extending inwardly into the open space in the frame.

5 4. A garment hanger as claimed in claim 3 wherein said rod has a surface facing said bar which includes means to hold the garment on said bar.

5. A garment hanger as claimed in claim 4 wherein said means on the rod to hold the garment on the bar comprises two laterally spaced engagement portions with a recessed surface therebetween.

6. A garment hanger as claimed in claim 5 wherein said bar has a domed surface facing the recessed surface of the rod.

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